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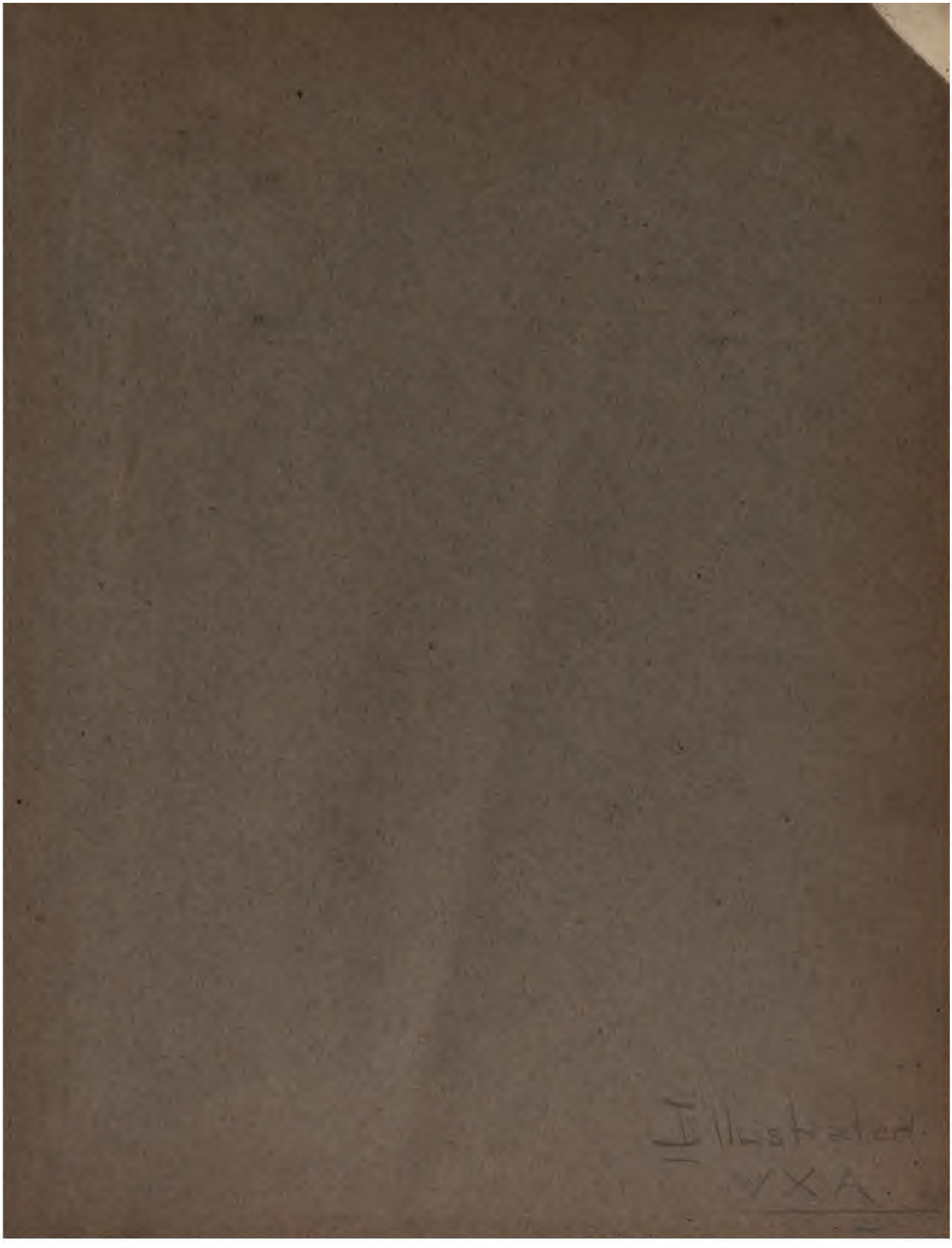
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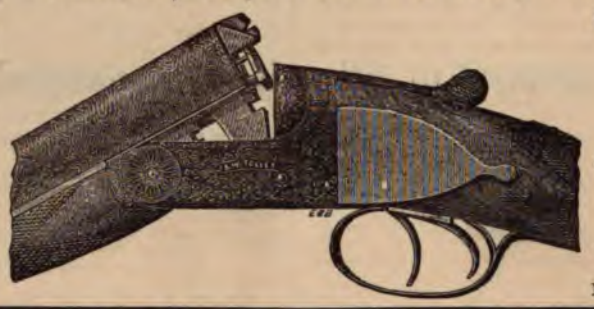
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PRUSSIAN SOLDIERS OF 1813.

THE conditions of the peace of Tilsit were, short of actual annexation, the most humiliating that could have been imposed upon a defeated people. Never in her history has Prussia received so crushing a blow to her prospects as a nation as that of July 1807. She was robbed of one-half of her territory, and of nearly one-half of her population, which was reduced to less than 5,000,000 inhabitants, exhausted by the drain of a long and disastrous war. The plans of her rulers, obstinately persisted in by many generations of Hohenzollerns, seemed irrevocably shattered. The disasters of Jena and Auerstadt had reduced the national forces to a tithe of their former strength; and the country was occupied and overawed by an enormous French army.

Fortunately for Prussia, she possessed, at this most critical period of her history, a number of public men never surpassed in military administrative ability. A Commission was appointed, under the presidency of Scharnhorst, to project a scheme for the complete reorganization of the army. In accordance with the proposals of the Commission, arrangements were made for maintaining a standing army of nearly 70,000 men, and for increasing it in war by reserves and militia; the *corps d'officiers* was remodelled; the enlistment of foreigners discontinued, and the number of exemptions reduced.

Napoleon was surprised and alarmed by this activity; and he made use of the enormous lever at his command to avert the danger before it became imminent. The occupation of Prussia by French troops was a heavy burden on the exhausted revenues of the country; and the Emperor was able to dictate almost any terms for their withdrawal. The evacuation was purchased by concessions yet more humiliating than those of Tilsit. The first and principal clause in the Convention of Paris was textually as follows:—

"Sa Majesté le Roi de Prusse, voulant éviter tout ce qui pourrer donner de l'ombrage à la France, prend l'engagement de n'entretien pendant dix ans à compter du premier Janvier Mil-huit-cent-neuf que le nombre de troupes ci-dessous spécifié, savoir—

"Dix régimens d'infanterie, formant au plus un effectif de vingt-deux mille hommes	22,000
"Huit régimens de cavalerie, ou trente-deux escadrons, de deux cents cinquante hommes chacun, formant au plus huit mille hommes	8,000
"Un corps d'artillereurs, mineurs, et sapeurs, au plus de six mille hommes .	6,000
"Total, trente six mille hommes . .	36,000
"Non compris la Garde du Roi, évaluée, infanterie et cavalerie, à six mille hommes	6,000
"Total, quarante-deux mille hommes .	42,000"

By the remaining provisions of this one-sided convention Frederick William III. bound himself not to increase this force by any levy of militia, nor to employ in his service any subjects of the ceded provinces, and to support France in an eventual war with Austria with 16,000 men of all arms.

By this move Napoleon gave a very decided check to the scheme of army reorganization that had been projected by Scharnhorst and his colleagues. But the Emperor never seems to have fully estimated the resources of his adversaries. The Convention of Paris was

scrupulously respected in its literal interpretation; but at the same time the most ingenious methods were employed to evade the spirit of its provisions.

The Prussian army was divided into six brigades, corresponding to the six military cantons of the country —East Prussia, West Prussia, Pomerania, Brandenburg, Lower Silesia, Upper Silesia. The light troops which had previously been independent, were incorporated by battalions in the infantry regiments; the only exceptions being the Jäger and Schützen. The brigades were composed as follow:—

East Prussia.—2 regiments of infantry, 1 battalion of grenadiers, 1 brigade of artillery, 1 regiment of cuirassiers, 1 regiment of dragoons, and 1 regiment of hussars of the Guard.

West Prussia.—2 regiments of infantry, 1 battalion of grenadiers, 1 regiment of dragoons, 1 regiment of hussars of the Guard, and 1 regiment of uhlans.

Pomerania.—2 regiments of infantry, 1 battalion of grenadiers, 2 regiments of dragoons, and 1 regiment of hussars.

Brandenburg.—2 regiments and 1 battalion of foot-guards, 1 battalion of Jäger Guards, 1 brigade of artillery, the Life Guards, 1 squadron of uhlan Guards, 1 regiment of cuirassiers, 2 regiments of hussars, and 1 regiment of uhlans.

Lower Silesia.—2 regiments of infantry, 1 battalion of grenadiers, 1 battalion of Jäger, 2 regiments of dragoons and 1 regiment of hussars.

Upper Silesia.—2 regiments of infantry, 1 battalion of grenadiers, 1 battalion of Schützen, 1 brigade of artillery, 1 regiment of cuirassiers, 1 regiment of hussars, and 1 regiment of uhlans.

It will be seen from the above that each brigade constituted a *corps d'armée* in miniature, and was capable of indefinite expansion in war.

The *corps d'officiers* now underwent thorough re-organization. It was divided by a Commission of Inquiry into three classes: those who needed no certificate of good conduct, those who needed one, and those to whom it was refused. The last category were for the most part dismissed the army. All officers above the establishment were sent on half-pay, and held available to supply cadres for any new formation in war.

The great difficulty, however, was to obtain a large number of trained men without violating the provisions of the Convention.

Although the number of exemptions under the cantonal system of recruiting was reduced, it was not at first thought advisable to introduce universal military service. In the first place it would probably have



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"given umbrage to France"; in the second, a comparatively small number of recruits was needed to maintain the effective of the standing army. The difficulty was met by adopting, in all secrecy, the so-called *Krümper-system*. The word *Krümper*, of which the origin is doubtful, was applied, under Frederick the Great and his successors, to all trained men in the cantons above the fixed establishment for recruiting the active army in war.

By a Cabinet Order of 17th November 1808, the combatant strength of the company was fixed at 5 officers,



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12 non-commissioned officers, 4 bandsmen, and 135 privates for the infantry; 5 officers, 14 non-commissioned officers, 20 bombardiers, 2 bandsmen, and 96 gunners for the field artillery; and 5 officers, 14 non-commissioned officers, 20 bombardiers, 2 trumpeters, and 112 gunners for the horse artillery. The cavalry squadron was 6 officers, 12 non-commissioned officers, 3 trumpeters, and 110 privates strong. The first important measure adopted with the object of forming a reserve of trained troops, was to dismiss 5 men per company monthly on leave and supply their places with recruits. By this means it was calculated that, so early as 1809, about 3 non commissioned officers and 35 men were available per company in the cantons. These troops were neither paid nor clothed in peace.

When, however, the number of men required for recruiting the standing army in war was reached, the system had been found so successful that not only was it not discontinued, but its application was amplified to an unexpected extent. In February 1811 an order was issued authorizing each company of infantry to call up 8, each squadron of cavalry 3 cantonists, in four successive months; at the end of which time, therefore, 32 and 12 men per company respectively would have received military training. These men and all others called upon in a similar manner, were the so-called *Krümper*. All these measures were kept profoundly secret, and regiments, companies and squadrons paraded, especially in the principal towns, with a fraction of their effective strength.

In July 1811 depôts were established in all regiments except the Guards, for rapidly training the *Krümper*, whose numbers now became considerable. The staffs of the depôts were supplied by the active troops, who completed their strength with recruits. In addition, special "training detachments" moved about the country, calling up the men on leave for short periods of drill. The arms necessary for these trainings were transported, as a rule, on carts from district to district. Reports of the progress of these operations were sent in to the War Office every two months by the regimental commanders.

At the close of 1811, therefore, every regiment had a war effective composed as follows:

1. The peace effective.
2. The troops of augmentation.
3. The reserve of 20 men per company.
4. The Krümper.
5. The depôt.

This organization was shortly afterwards extended to the Guards, who were instructed to "avoid all publicity, and treat the depôt as a purely regimental matter."

By these means the number of *Krümper* in the cantons was raised at the close of 1812 to 150,000, and when war broke out the Prussian army consisted, including volunteers, Landwehr, &c., of 253,350 men. Of these 56,000, divided into four *corps d'armée*, were immediately available for the field. All exemptions were disallowed, and every citizen between 17 and 40 years of age was liable for service. This was the first acceptance in Prussia of the principle which led to Leipsig and Waterloo, and ultimately to Wörth and Sedan.

MODERN TACTICS.

By CAPTAIN H. R. GALL, Late 5th Fusiliers.

CHAPTER V.—Defence of a Position.

POLITICAL and strategical considerations fix the localities in which armies, or portions of armies, are concentrated for the purpose of opposing an invasion. These localities fixed, tactical requirements regulate the actual positions occupied to frustrate or repel attacks. A defensive attitude is usually taken up by the weaker side; but not necessarily. If the Swiss were at war, apart from their probable numerical inferiority, a strictly defensive *rôle* would undoubtedly be their wisest policy.

Again, take Afghanistan; the Afghans well know the value of a passive resistance. In 1877, after Osman Pasha's surprising flank march to Plevna, had Mehemet Ali's advice been acted upon, the feeble defensive plan of action pursued by the Turks would have been changed into a vigorously offensive one, under circumstances very favourable for Turkey, and illustrated the old adage, that the soul of defence lies in "counter attack."

If, in place of wasting the flower of his troops in isolated attacks on the Shipka Pass, Suleiman had fallen upon the right flank of the Czarevitch's army, retreating before Mehemet Ali, the Russians, outnumbered and outflanked, must have fallen back until reinforced by the troops round Plevna; in which event Osman Pasha could have issued out with his army flushed by victory, and the Russians would have been forced to fall back to protect their bridge over the Danube, and, if pressed, would have been obliged to fight a battle with their backs to the river, hemmed in on all sides, and attacked in front and on both flanks. The utter worthlessness of Mehemet Ali's army would not have been revealed until it was too late, and his reputation as a tactician would have been established. There is more to be learnt by a study of the mistakes committed on both sides in 1877 than has been generally recognized.

The campaign of 1870 marked the revival of the art of war, which since the peace of 1815 had almost ceased to be practised; but it was so one-sided that the Prussian tactics, successful as they were, must be put to a severer test before well-established principles of defence are renounced.

It is idle to conjecture, but interesting to speculate how the French might have turned the tables at Spicheren, or at Worth. To imagine the first Napoleon marching his army up and down between Metz and Chalon, after two such opportunities, is hardly possible. Yet from the date of these battles the war, as far as the French were concerned, was virtually over. Their subsequent blunders brought about Sedan, and culminated in the surrender of Metz.

The object of this digression has been to endeavour to point out that a too general adoption of German tactics, as successfully practised in 1870, may lead to their being misapplied under less abnormal conditions, and with a totally different organization.

Principles of Defence.

A commander, after having made the best reconnaissances that the time and means at his disposal admit of, before finally selecting a defensive position from which to await attack, should satisfy himself that he has sufficient troops to defend all the vital points of the position he contemplates occupying.

"Vital points" are positions which command main avenues of approach, and which, if captured, would seriously influence the issue of a battle; enabling, for instance, the assailants to hold a large portion of the defenders engaged on one flank of the main position, while the other was being vigorously attacked—or prevent them from issuing out to deliver a counter-attack; or positions which, if captured, would threaten the defender's line of retreat; or which, if captured and held, would afford good rallying-points from which to deliver a further assault. Such points can only be determined by a tactician on the spot.

In every configuration of country comprising two or more of the principal requirements of a good position there are certain to be one or more "vital points."

A vital point in a position may be compared to a swordsman's right hand, if maimed in which he can only continue the combat on unequal terms with his left.

The "key" of a position is that portion of it which either predominates the whole, or commands its most vulnerable parts. So long as it is held a battle is not lost; and the assailants are liable to be finally repulsed, and even ejected from those positions they have cap-

tured. The art of tactics in defence is to decide with confidence what constitutes the key of a position, and what vital points must be held in conjunction with it.

These points can only be fixed on the spot, and in selecting them none of the principles of defence ought ever to be violated through ignorance, or if circumstances necessitate, as they often must, the violation of a principle, the possible contingencies must be carefully considered.

The main features of a good position are :—

(1.) Its extent, which must be in proportion to the force available for defending it.
(2.) A general command of surrounding country.
(3.) Depth to admit of ample cover being provided for all troops not actually engaged, and for their being freely manœuvred.
(4.) Sufficient lateral communications.
(5.) Water supply.
(6.) Ample means of retreat.
(7.) Possibilities of issuing from it to deliver counter attacks.
(8.) Flank protection.

It will rarely happen that all these advantages will be found ready to hand; but some of them must be secured, and others must be artificially provided.

Rules to be Observed in Occupying a Position.

(1.) Post the artillery on the most commanding ground suitable for its effective action. Concentrate batteries as much as possible, for the sake of unity of command, on points which command approaches, and which will compel the enemy to remain out of reach or deploy at a distance, and thus delelop his real intentions.

(2.) Post the front line of infantry (entrenched) along the highest available contours, advancing it to include the outer edge of woods, villages, &c. within rifle-range of any vital point. When posting infantry (who will have to bear the brunt of the battle) be careful to economize them by not occupying places unassailable by the enemy's infantry (deep re-entrants, for instance). Allow one yard per man for actual firing line, and provide supports and local reserves; the former should not seek for natural cover more than 150 yards behind the firing-line, and the latter should not, as a general rule, be more than 300 yards behind the supports.

(3). Post the Second Line with a view to its four specific objects, viz. :—

1. To reinforce vital points when they are in danger of being captured.
2. To meet flank attacks.
3. To make counter attacks.
4. To protect a general retreat.

(4.) If, in addition to a second line, there are enough troops to have a General Reserve, post it at first in some central position well out of artillery-range, and move it during the action to the most threatened flank or other weak part of the position.

(5.) If ground on flanks is open and suitable for cavalry to manœuvre on, utilize cavalry arm boldly to discover any contemplated turning movements of the enemy, and prevent his cavalry from working round the flanks and discovering preparations to meet flank attacks, dispositions of second line, positions of reserves, means of retreat, &c.

(6.) If flanks are open to being turned, endeavour to checkmate turning movements by making lines of entrenchments in echelon on the flanks, to be occupied by portion of second line or reserve, if enemy attempts any wide turning movement.

(7.) Baggage, trains, general hospitals, extra ammunition, field parks, &c. at least a day's march in rear. With three days' cooked rations all ready to be served out to troops on arrival at first halting-ground, in the event of retreat.

(8.) Every army, or portion of a force within striking distance of an enemy, protects itself with outposts, cavalry, or infantry, or the three arms combined, according to circumstances, in front of, and overlapping the flanks of the position it intends to occupy, in order to give it rest and security, and compel the enemy to develop his real attack in time to allow of the general position being occupied, and the threatened points being reinforced.

The following is the generally accepted method in the British army of posting a battalion of eight companies in the front line of defence. It is open to the objection that companies are needlessly mixed up.

(1.) Firing line three companies in single rank, each man occupying one yard, which gives him room to use his rifle with precision at long ranges. This gives a front to a battalion of 300 yards.

(2.) Two companies in support, posted under cover, not more than 150 yards in rear, to replace casualties in the firing line.

(3.) Three companies, as local reserves, posted not more than 300 yards back from the supports, to be moved up wherever they are required to expel any intruders immediately they gain a footing, and before they can be reinforced. At this moment the fire of the assailants must have ceased, and it is very favourable to deliver a well-directed counter attack with a compact body of fresh troops. This plan, in addition to mixing up companies in the firing line, divides a battalion into two unequal parts.

The following arrangement is suggested. Three sections of each of the four right or left half-battalion companies in the firing line, and the fourth section of each in support. This would give the same front, viz. 300 yards, and avoid all mixing of companies in the

firing line, which would then remain always under their own section commanders.

A section per company in support ought to be ample for the purpose of replacing casualties, and would present a smaller target to the attack. The whole of the rear half-battalion would be in reserve, divided into two double companies, if necessary, or kept together, according to the requirements of the position. The amount of fire action developed would be the same as before, the target smaller, and the reserves stronger.

Fire Action.

The object of the defence is to endeavour to exhaust the attack. This is done by providing cover for everybody, supplementing whatever natural cover exists by entrenchments and redoubts. From this cover the defenders keep up a continuous fire from the moment they have an adequate mark to aim at. Ammunition should never be wasted by firing at an inadequate mark, and its expenditure ought to be controlled by section commanders; but considerable latitude should be given, as the object of the defenders is to prevent the assailants reaching within point-blank range of the position, and diminish their force at a distance, when their return fire can only be random and comparatively harmless.

The Field Exercise, Part V., under the heading

Musketry Fire Tactics,

Lays down, at considerable length, the limits of the employment of fire with the Martini-Henry rifle, and this section requires to be carefully studied.

"In action musketry-fire is the main element. It cannot be left to individual initiation without the danger of its degenerating into a useless expenditure of ammunition.

"The duty of 'directing' musketry-fire falls on the company commanders in the firing line (both in defence and attack); that of 'regulating' the fire on the section commanders, under the direction of the company commanders.

"The captain points out the objectives to be attacked, and the nature of the fire to be employed. He carefully watches the direction of the fire of the various sections, and endeavours to keep it under control.

"The section commander, having pointed out the position of the object on which the sections should aim, will name the distances for which the elevation is to be used, the number of rounds to be fired, and the description of fire.

"The direction and control of fire requires, on the part of company and section commanders, calmness and decision, skill in judging distance, a quick perception in estimating the importance of the various objectives, together with a complete knowledge of the advantages and disadvantages of the varying formation of the ground, and of the curve of the trajectory of the rifle at the different ranges.

"The general principles for the regulation and direction of musketry-fire are as follows:—

"The number of men to be placed in the fighting line in the defence depends on the configuration of the ground. The fire must be slow enough to insure accuracy. Pauses of some length should occasionally be made to allow the smoke to clear away, to judge of the effect produced, to give the necessary orders, and to keep the men steady.

"In the defence the pauses in firing should take place when the attacking troops are lying down, or partly covered.

"The cessation of fire in one portion of the line of defence may often serve to draw on the enemy to the point which he thinks has been abandoned, and a sudden resumption of fire, from the same spot, will produce a considerable effect on the assailants.

"Volley firing keeps troops in hand, facilitates the employment of converging fire, allows of the correction of elevation and direction, by observing the points where the bullets strike, and affords the best means for regulating the expenditure of ammunition, always a very important consideration, though less so in the defence than in the attack.

"The distances at which fire should be opened depend on the formation of the ground, on the vulnerability of the objectives, and on their tactical importance. Firing on an enemy at a 'long' distance may result in shaking him, and retarding his entry into action; it may render difficult the occupation of an important point, such as a bridge, an intersection of roads, or any particular line of advance imposed on him."

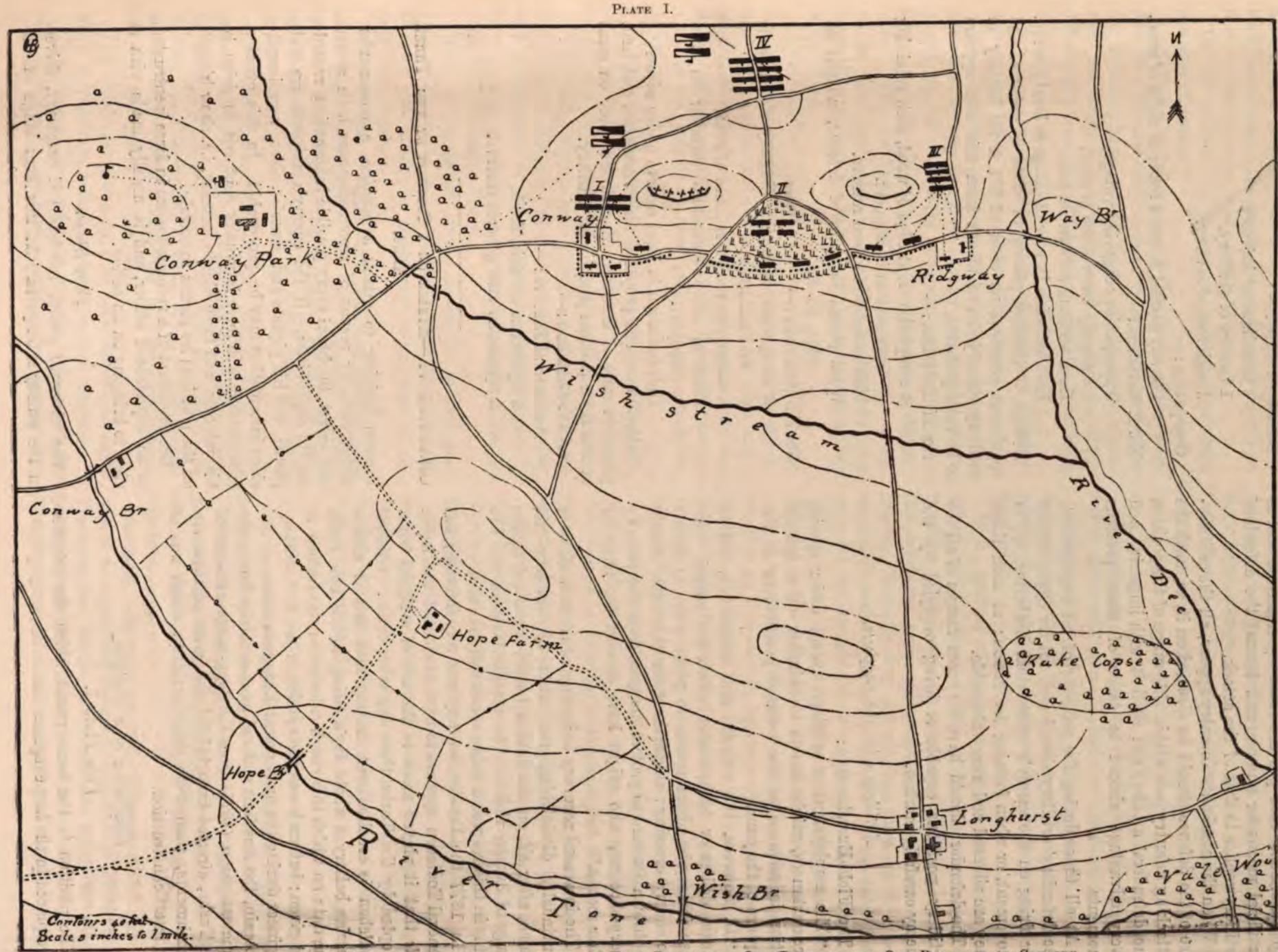
A remarkable instance of this was furnished during Suleiman Pasha's attack on the Shipka Pass. The Turks from the woody mountain position commanded the only line of retreat and of communication the Russians possessed, and at long ranges inflicted frightful losses on them.

"In the defence opportunities will be generally found for firing with effect at 'long' distances, and at 'medium' distances the practice of the defence should always be very destructive.

"Long-range firing on the part of the defence may often have the effect of inducing the attacking force to break into extended order too soon, and to expend more ammunition at long distances than they can afford."

Artillery-fire Tactics in Defence.

If decidedly inferior to the artillery of the assailants the guns should be carefully masked, so as not to draw the concentrated fire of the attack upon them until the enemy's infantry shows. If not very inferior (taking into consideration the advantage of being able to throw



OCCUPATION OF A POSITION BY A FORCE CONSISTING OF FOUR BATTALIONS, ONE BATTERY, AND ONE REGIMENT OF CAVALRY POSTED BY LIEUT.-COLONEL MALLOCK, LATE ROYAL FUSILIERS.

up epaulments and procure cover by either natural or artificial means for gunners and teams) the defenders' artillery replies to that of the attack.

When the assailants' infantry appear, all the artillery-fire of the defence should be directed on it, as, until the attacking infantry gets within rifle-range of the position the defenders' artillery can shell it with impunity, and every advantage should be taken of these precious moments.

At all times during the progress of an engagement, the defenders' artillery should look out for opportunities for firing on the enemy's guns when limbering up, in movement, or when forming for action; at such times they are silenced and very vulnerable.

The defenders should have the exact ranges of all the artillery positions capable of being occupied by the enemy carefully marked.

Artillery with the Outposts.

The Field Exercise says:

"The employment of artillery, except under special circumstances, might result in bringing on a general action in advance of the selected position, or in the capture of the guns.

"If, however, the outpost line commands, within range, defiles or bridges over which the enemy must pass, it may be advantageous to place guns to harass the enemy crossing; skirmishers, in this case, should be thrown forward to protect the guns from the enemy's sharp-shooters, who might have crossed the fords by other means."

The increased accuracy and range of modern rifles is continually diminishing the effect of artillery-fire, which, after all, on the field of battle, is limited to the range of human vision. The margin between the two arms in this respect is being continually reduced.

In 1877 the Russian artillery was very inferior; but General Todleben appears to have attributed the feeble *rôle* that it played more to the use of artificial cover adopted by the Turks than any other cause. General Todleben is credited with having said that it took a Russian battery a whole day's firing to kill one Turk. The data on which this rough calculation was formed is not given; but such was the opinion of the first military engineer during the most recent European war.

Again, the Russians suffered more severely during the same campaign (1877) from the long-range rifle-fire of the Turks, directed from behind the cover of their entrenchments, than from their artillery, which was of the latest construction.

Occupation of a Position.

Vide Plate I.

The position is the same round which the outposts were placed in the last chapter.

Defenders' force:—

4 battalions of infantry,
1 battery of artillery,
1 regiment of cavalry.

Occupation:—

Conway hamlet to cross roads on right of wood.

No. I. Battalion:—

3 companies occupying village,
1 company outer fence of road,
Each forming its own support.
Half-battalion in rear of village as local reserve.

Village of Conway placed in state of defence, and epaulment prepared on crest of hill A for battery of artillery placed here, as attack from this side appears to be most probable.

No. II. Battalion:—

4 companies front edge of wood, each retaining one section in support.
Half-battalion in local reserve.
Wood placed in state of defence, abattis at edge, &c. &c.

No. III. Battalion:—

2 companies occupying Ridgway Farm-house and buildings,
2 companies the outer fence of road,
Each of these companies forming its own support.
Half-battalion in local reserve under cover.

Bridge to the left prepared for destruction, and farm placed in state of defence. Epaulment made on crest of hill B for possible position for artillery.

No. IV. Battalion:—

As General Reserve:—

2 squadrons on right flank,
2 squadrons with general reserve.

CHAPTER VI.—Attack on a Position by the Three Arms.

Before deciding to attack a position, a commander endeavours, by means of reconnaissances both armed and secret, to obtain every possible information regarding its capabilities. If the enemy's outposts are well posted, and his piquets and sentries alert, very insufficient information may be procurable. In this event a reconnaissance in force is usually sent out to drive in his outposts, and force him to unmask, *i.e.* show himself on the positions he means to occupy.

The command of a reconnaissance in force is entrusted to an experienced officer, and is usually made with a view to bringing on an action.

First Stage.

The advanced guard, reinforced if necessary, drives in the enemy's outposts. At this first stage of the

attack on a position, provided the country admits of their manœuvring, the assailants' cavalry can hardly be used too freely or too boldly on the flanks.

1st. To prevent the defenders' cavalry discovering the plan of attack.

2nd. To try and work round the flanks of the position, and discover what natural or artificial protection the defenders have got for them. To ascertain, if possible, the depth of the position, and the positions of the defenders' second line and reserves, and also their lines of retreat.

3rd. To cover the movements of their own infantry, moving to a flank, and not formed for attack.

4th. By their presence generally to harass the defenders, by opposing their cavalry and making feints at charging their infantry whenever an opportunity is given them for delaying, even momentarily, a deployment. The assailants' cavalry, manœuvring on the flanks, can often judge of the effect produced by their own side's artillery-fire, and report on the practice they are making.

A well-handled body of cavalry with a few field-guns may play an important *rôle* in every stage of an action, provided its commander is in touch with the other arms, and is not so rash as to suppose that cavalry alone can engage infantry, unless they have run short of ammunition, or are greatly demoralized, or taken completely unawares.

If instead of charging the British squares at Waterloo Napoleon had sent half his cavalry to the right to harass the Prussians, and a portion of the remainder to work round Wellington's right flank, they might have considerably delayed Blucher's advance on one side, and spread panic as far as Brussels, and subsequently have hovered on the flanks, and in rear of the Allies, or rallied on Grouchy's Force.

When not operating on the flanks the normal place for cavalry on the field of battle is with the reserves. Cavalry can quickly be transferred to any part of the field when required.

Great caution combined with dash and boldness have been the characteristics of all successful cavalry leaders. Had Prince Rupert possessed the first of these qualifications, he would have been the *beau ideal* of a cavalry general.

A thorough knowledge of the tactics of the three arms is essential to every cavalry officer, without which he cannot hope to seize upon and make the most of the fleeting opportunities in a battle, when a well-judged, and skilfully-handled charge may produce a momentary effect as astounding as it is sudden.

The highest perfection in a cavalry leader is to know when to withdraw, and give way to his own infantry.

The Russians have, perhaps, bought their experience somewhat dearly; but with respect to their cavalry they are making rapid progress in a right direction, and this arm is probably destined to play an important part in their future campaigns.

Cavalry at all times should be capable of being turned into serviceable infantry.

Second Stage.

The outposts driven in and the flanks well scoured, a battle opens with what is called the "Artillery Duel."

Having approached within shelling distance, the assailants' guns should be massed as much as the ground admits of, and their concentrated fire directed upon some vital point.

If the artillery of the defence replies, the guns of the attack will be directed with a view to silencing it if possible. This is not easy to accomplish. First, because the defenders' guns are generally protected by epaulments. Secondly, they can withdraw them out of action until the assailants' infantry appears. If the defenders' guns are not brought into action the assailants can shell their positions with impunity; but with what effect depends on the amount of cover they afford.

It is a generally accepted maxim that no position ought to be assaulted by infantry until it has been well pounded and shaken by artillery. Nevertheless, a good many hours of valuable daylight may often be wasted to little or no purpose, by prolonging a harmless cannonade directed against substantial earthworks.

It has been seen that the direction of the artillery attack will depend at first on the fire tactics of the defence; but eventually the concentrated fire of the assailant's guns must be directed on some vital point, the capture of which has been decided upon.

During the artillery cannonade, the infantry is deployed, and if a turning movement is contemplated, the troops told off for it are marched away, covered, if the ground is open, by cavalry, in skirmishing order.

At all times when within view of an enemy, and especially when moving to a flank, every possible advantage should be taken of any cover from view. This is often obtainable from much gentler undulations than men are accustomed to utilise in drill.

Third Stage.

There are three courses at this stage of a battle more or less open to the assailants.

First.—To endeavour to envelop a position, and gradually close on it, without exposing a flank to counter attack. This plan necessitates a great superiority in numbers.

Secondly.—To make a holding attack in front, and a wide and deep turning movement round one or both flanks. This plan also implies a considerable numerical superiority, and entails the most careful and accurate calculations of time, to ensure the combined action between

the front and flank attacks, without which they become isolated, and liable to be beaten in detail.

A skilful general will provide artificial flank defences to his selected position when natural ones do not exist, in rear of either, or both exposed flanks.

The probabilities ought to be that a turning movement to be successful will have to outflank these entrenchments, in which case it must be very wide, and can only be undertaken when the assailants feel themselves strong enough to divide their forces, and still repel any concentrated counter attacks delivered by the defenders acting on interior lines, at the time when their opponents are at their widest point of separation.

The danger of dividing an army on the field of battle, has been fatally exemplified too often to need further demonstration.

Still, if a turning movement is accurately timed, and secretly and skilfully executed, so as to ensure the two attacks, viz. that in front of a position, and that on its most exposed flank, being simultaneously delivered, it justifies the presumption that it may be carried.

The third course open to the assailants is perhaps the most generally adopted, and, in the event of the preponderance in numbers not being much in favour of the attacking side, is certainly the least risky, viz. to make a demonstration along the front of the defenders' positions, to keep them generally occupied, and by means of local and general reserves to attack a vital point with local superiority.

In order to do this the commander must throw his reserves into the fight exactly at the right moment. Battalions, brigades, divisions, must be launched not one after the other, but as nearly simultaneously as the cover they are taking advantage of will permit.

The general plan of attack will be influenced—

1st. By the configuration of the ground and the amount of lateral communication between the centre and flanks.

2nd. The quality of the assailants' troops.

3rd. The quality of the defenders.

4th. The mistakes of the defenders and the accidents of battle.

To take advantage of the latter so as to turn them to immediate account is the highest aim of tactics.

The Duke of Wellington, when asked to state the opinion he had formed of Napoleon as a tactician, is said to have replied, "Napoleon's presence on a field of battle is equivalent to forty thousand men."

If no cover exists, successive waves of skirmishers pressed on vigorously in rapid and never-failing succession can alone hope to capture an entrenched position resolutely and scientifically defended.

General Skobeleff, who seldom failed to carry the numerous entrenched positions he attacked, said, that in every attack there was a critical moment when the reserves must be thrown into the fight, either to re-establish confidence or to confirm victory.

This moment has arrived when there is any signs of wavering on either side.

It must always be borne in mind that a vital point has not only to be carried, but to be held when captured, and made secure against counter attack, and during the final rushes the assailants, owing to their proximity to the enemy, lose whatever support they may have hitherto received from the oblique fire of troops co-operating on their flanks, as well as that from the artillery-fire directed over their heads against the defenders.

Any infantry attack formation founded on the supposition that companies are not to be mixed up, however good in theory, can hardly be expected to meet the requirements of modern warfare.

Experience has shown that in the attack on an entrenched position, not only do companies become mixed, but battalions, brigades, and divisions, before steady troops fighting behind earthworks, will abandon good cover to be shot down retreating over the open, by volleys delivered at point-blank ranges.

The Prussian losses within 300 yards of the French positions in 1870 were almost nil, but the experience of a more recent campaign has shown that resolute troops can hold entrenchments to the last against breech-loaders.

The odds in favour of the defenders, if carefully and scientifically entrenched, are very great, and with repeating-rifles they will be greater still.

However, positions have been assaulted and carried against fearful odds from time immemorial, and will have to be again when nations go to war.

The breech-loader has developed fire action in the open, to the exclusion of what was called shock; but the spade, as demonstrated at Plevna and in the Shipka Pass, has beaten the rifle; and before entrenched positions resolutely and scientifically defended can be captured, the next great war will probably show that rifles will frequently have to be clubbed, and bayonets crossed.

The Russians in 1877 often reached the Turkish entrenchments, only to perish in them, or only captured them after desperate hand-to-hand fighting.

The construction of the Turkish and Russian field fortifications, and their defence, furnish a study well worth the careful consideration of every thoughtful soldier. They belong more properly to field fortification than tactics, and the student is recommended to read a most interesting and valuable book entitled *The Russian Army and its Campaigns in Turkey*, 1877–78, by F. V. Greene, U.S. Army. The book is published by Messrs. W. H. Allen & Co., 13 Waterloo Place, S.W., together with an excellent atlas, and sets of drawings

representing very clearly the types of field-works used by the Turks and Russians respectively.

Lieutenant Greene remarks in his concluding chapter: "The campaign, 1877–78, like every campaign which was ever fought, furnishes its military lessons for the future, mistakes to be avoided, successful manœuvres to be repeated under similar opportunities. But there is one feature, a question of tactics, in which this war finds no parallel in past history, and which is of the highest importance for the conduct of future wars. I refer to the great use which was made of hasty fortifications in connection with modern fire-arms."

Infantry bear the brunt of every battle, and their assaults are now delivered in the formation known as "The Attack Formation."

The British system is fully described in the Field Exercise. Its main characteristic is that it endeavours to eliminate the mixing up of companies.

Several other attacks (including one by the author),* have been advocated, all based on the wrong assumption that it is possible to prevent companies being mixed up. Until this restriction is removed no practical solution of the all important tactical question is likely to be arrived at.

With an organization giving eight weak companies to a battalion, and in the face of recent military history, the tenacity with which the authorities hold on to their thoroughly impracticable restriction about not mixing up companies is inexplicable.

In the opinion of a high German authority, "It destroys at the very outset of the action the captain's control over his company, and entirely ignores the losses inseparable from a general assault on a position, and that to carry a front of 800 yards it is necessary to put in a whole division. Battalions must be intermixed before even a distance of 700 yards from the enemy has been reached, and by the time the zone of decision (about 300 yards) has been attained, whole regiments will be required.

"This danger can only be guarded against by accustoming the men in peace to act under the orders of the officers nearest to them, and, on the part of the officers by redividing amongst themselves the commands as each fresh reinforcement comes into line. This is the universal practice in Germany at present. The British advance is altogether too slow.

"In the German attack, from the moment the signal for the advance is given, all troops in rear of the fighting line move off in quick time and never halt; if the fighting line is checked, they close on it and carry it on with them.

"The usual distance between successive lines is about 400 paces."

* *Vide* article in February number, *Illustrated Naval and Military Magazine*,

Fourth Stage.

At the moment of closing on the defenders' position, all three arms must be well up to co-operate. The same German authority above quoted remarks that, "the different arms of the service in the English army are not sufficiently closely united; they fail to perceive that each only exists for the other, and that the efficiency of an army is measured by the product, not the sum, of the efficiency of each arm."

The guns must be prepared to move forward (not necessarily on the flank) as their infantry advances, and take up fresh positions, and, if necessary to re-establish confidence, come right up alongside of it, to within 900 yards of the enemy, *i.e.* within the deadly zone of the defenders' rifle-fire. The fatal fallacies which the breech-loader brought in its train must be swept away before cavalry or artillery resume their proper *rôle* on the field of battle.

The cavalry must be ready, not simply willing, to sacrifice itself in the event of a repulse, to give time for its beaten infantry to be rallied, or to retreat to a safe distance and extemporize a rear-guard, in the event of a retirement being deemed expedient.

In the event of success it is equally imperative for the sister arms to be well up with their infantry: the artillery to make good the captured positions against counter attack, and to shell the retreating enemy; and the cavalry to pursue and reap the full fruits of the victory.

The efficiency of artillery depends to such a large extent on accurate shooting, and this again on the nature of the ground and the state of the weather, that any calculations not made on the spot are worthless.

The principle that artillery should not fire over infantry is entirely a wrong one, and practically deprives the infantry of the co-operation of its guns.

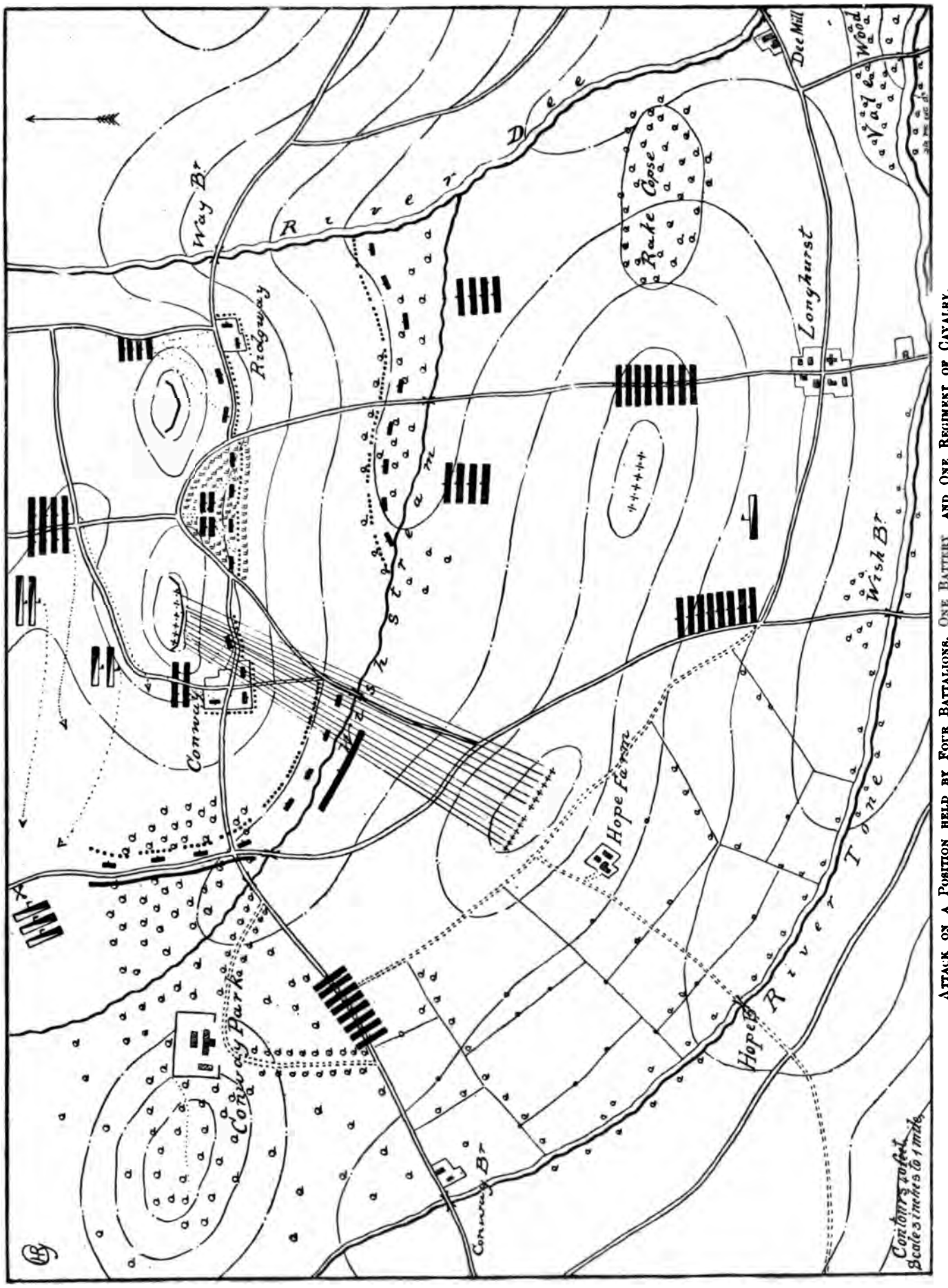
In pointing out this tendency of British gunners not to fire over their infantry, the same German officer before quoted, explains, "That, even in a fight of one corps against another, it would be impossible for the artillery to prepare the attack from a position on its flank, because, taking 2,000 yards as the distance between the two fronts, the outer battery of the line would be some 4,000 yards distant from the point of attack; and where several corps are fighting alongside of each other, the idea is perfectly impracticable."

Artillery-fire Tactics in Attack.

1st. Fire on hostle artillery, if it be visible; if not shell his infantry.

2nd. Change position as seldom as possible during an action, as guns are vulnerable and silenced when moving; and if the target be visible, 200 or 300 yards, more or less, makes little difference with modern artillery.

PLATE II.



ATTACK ON A POSITION HELD BY FOUR BATTALIONS, ONE BATTERY AND ONE REGIMENT OF CAVALRY, BY LIEUT.-COLONEL MALLOCK, LATE ROYAL FUSILIERS.

When artillery moves forward it should move boldly and as far as necessary to co-operate with its advancing infantry.

3rd. Batteries should be massed as much as the ground admits of for the sake of unity of command. Experience shows it to be difficult to concentrate the fire of dispersed batteries.

Musketry-fire Tactics in Attack, as laid down in the Field Exercise,

"depend on a knowledge of the range, the skill" of the firer, and the formation of the ground; and in the field, the moral condition of the troops, and the quantity of ammunition at the disposal of the assailants.

According to the Field Exercise "distances are classified as follows: up to 400 yards 'Short Distances,' from 400 to 900 yards 'Medium Distances,' from 900 to 1,700 yards 'Long Distances,' and from 1,700 to 3,100 yards (the extreme range of the rifle) 'Extreme Distances.'

"The preparation of the attack at 'long' distances belongs to the artillery; it is only in exceptional cases that the infantry can take part in it.

"A premature opening of fire by the fighting line may lengthen the action, and lead to a deficiency of ammunition at the final stage, and thus weaken the moral energy of the assailants.

"In open ground the troops in the fighting line should only begin firing at 'medium' distances, provided the enemy is visible; if he is not distinctly seen the time is better spent in getting over the ground than in halting to fire at an inadequate target.

"In broken and covered ground the fighting line may advance to quite 'short' distances without firing.

"In the attack volley-firing should be employed, in the early stages when at the longer distances. It cannot be used by troops during the advance in the final stage, where any halt would delay the vigorous offensive required at the moment. Volleys should also be used by troops specially detailed for the purpose from the reserve, and placed on commanding positions on either flank to cover the general advance.

"When a position has been carried, volley-firing is the best fire to be used in the pursuit, and when getting the men in hand again.

"A dropping fire can produce no useful effect, and has the drawback of slackening the advance.

"The fighting line should be reinforced as the fire can be made to tell; it is essential to bring from the commencement an effective concentration of fire on the enemy's position.

"The useful effect of musketry-fire depends on its precision, combined with rapidity, but it is better to seek such effect from accuracy, and from a sufficient number of rifles brought up into the line (without overcrowding) than from undue rapidity from a smaller number."

These regulations are thus quoted with the object of impressing them upon the student (a considerable experience having convinced the writer that they are too often ignored altogether or slurred over).

Fire-discipline, especially when the attack commences, should be the most important part of an infantry soldier's training.

Attack on a Position.

Vide Plate II.

Attack on a position held by 4 battalions, 1 battery, 1 regiment of cavalry; by a division war strength—7 battalions, 3 batteries, 1 regiment of cavalry.

Scheme of Attack.

1st Brigade.—Two regiments in front and one battalion in second line. To make a demonstration against the front, whilst 2nd Brigade in same formation makes an attack on the right flank of the position.

One regiment as divisional reserve in centre.

Guns.—Two batteries support the 2nd Brigade, engaging enemy's guns if they come into action? If not, these two batteries direct their fire on the village of Conway.

One battery from the heights in rear of No. 1 Brigade shells Ridgway Farm and the wood in the centre of the position.

Cavalry.—Three squadrons work round the right flank of position, and cover flank march of 2nd Brigade.

One squadron remains with the reserve battalion. This squadron can furnish escorts to the guns if necessary.

H. R. G.

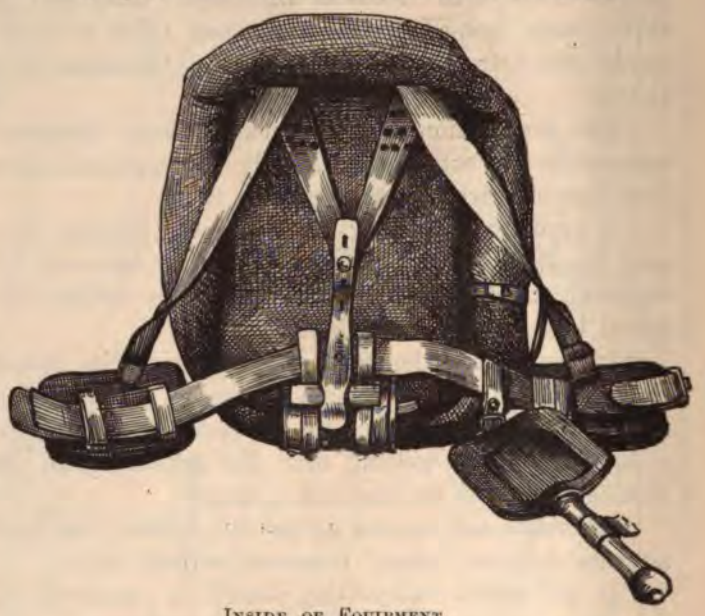
THE NEW GERMAN INFANTRY EQUIPMENT.

A GENERAL ORDER of 3rd March last decided, for some time to come, the vexed question of the German infantry equipment; and, in the opinion of most of our German contemporaries, will do much to increase the already high efficiency of the Imperial army. The reasons that induced the Emperor to sanction so radical a change must, says the *Militär Zeitung für die Reserve- und Landwehr-Officiere des deutschen Heeres* (Berlin), have been very weighty. In the last war the German infantry proved sufficiently by its performances that its equipment was then thoroughly satisfactory; and there is no reason to doubt that it is, at present, the best and most serviceable in Europe. Recent occurrences have, however, considerably modified the conditions under which the soldier may be expected to act in the next war. The introduction of the repeating rifle, and the growing numerical strength of the principal European armies, will render the marching power of infantry still more important in any future campaign than in that of 1870-71. It was, therefore, imperatively necessary to devise an equipment at once lighter in its several parts, and more calculated to distribute the total weight over the whole of the body.

The present equipment, so far as its most important part—the knapsack—is concerned, is practically the same as it was eighty years ago. It was invented by Napoleon I., who introduced it into the French army in 1804; and in five or six years its use had become general throughout Europe. The arrangement, however, by which the straps were caused to pass over the breast, rendered breathing difficult. Nevertheless, it continued unaltered until the accession of Frederick William IV., when several important changes were effected by Major Virchow. His system held its own, with a few trifling alterations, until March 3rd last.

The defects of the Virchow system have been pointed out in several works on military hygiene. In Surgeon-General Roth's and Staff-Surgeon Lex's *Handbuch der Militär-Gesundheitspflege* (1877) we find the following passages:—

"One of the principal disadvantages of the present system is that the weight is not shared equally between shoulders and hips. When the pouches are full, they partly counterbalance the pull of the heavy knapsack, but when they are empty the waist-belt is drawn up. If, in order to prevent this, the strap is tightened, breathing is seriously hampered. The knapsack, furthermore, must not be too loose, or it will tend to slip, and its movements will cause sores. As a matter of fact, but little weight is now borne by the hips, the greater part being carried by the shoulders. The soldier endeavours on the march to alter this uncomfortable position. He slacks off the strap in front, and allows the knapsack to slip down. By this, however, the shoulders are drawn back, and the lower edge of the knapsack cuts into the back. The soldier consequently again tightens the strap and finds relief in continual change. This explains the characteristic hitching-up of the knapsack at the end of a march."



INSIDE OF EQUIPMENT.

The general expression of the above ideas, not only by the medical but by the combatant officers of the army, led, in April 1884, to the announcement of a competition in the *Armee Verordnungsblatt*, in which a sum of 1,000 *M.* was offered for the best pattern of a helmet, 9,000 *M.* for the best pattern of a knapsack, and smaller prizes for other articles of equipment. The number of models sent in was, as might be expected from the value of the prizes offered, immense; and the War Ministry was occupied for many months in selecting the patterns most worthy of practical trial. On 5th July 1885, the prizes were awarded, with one exception, to the fortunate competitors. The water-bottle prize was not taken by anyone, as the patterns submitted were all considered unsatisfactory.

On 1st July 1886, the new equipment was issued to several battalions of the line for severe practical trial.

Marches were undertaken in all weathers, and in all localities, under every condition in which the actual requirements of war might be most accurately anticipated. The men and their equipment were examined daily with the strictest care; and the old equipment was worn alternately with the new, in order to facilitate comparison. At the end of each march the feet of the men were inspected, and their temperature, both under the helmet and knapsack, was taken by a surgeon. Only, therefore, after collecting an immense amount of statistics, throwing light on the serviceability of the new equipment, and after the introduction of number-



BACK VIEW, LIGHT ORDER.



SIDE VIEW, HEAVY ORDER.

less small changes, was the General Order of March last published, and the gradual adoption of the new equipment by the German infantry decided upon.

In selecting the new pattern of knapsack, the German military authorities were particularly careful to avoid the unequal distribution of weight on the shoulders and hips, about which so many complaints had been made. The difficulty was obviated by adopting the so-called *Tragegerüst*—a combination of shoulder-strap, back-strap, and auxiliary strap. The shoulder-straps are, as before, 5 cm. broad on the shoulders, but taper off in front and end in a brass hook, engaging with an eye on the back of each ball-bag. In the small of the back, both shoulder-straps are joined by a stud, to which is attached the back-strap, 26 cm. long, also terminating at its lower extremity in a brass hook engaging under the waist-belt. The accompanying illustrations will show, better than any verbal description, the construction of this *Tragegerüst*. It is for this reason important, that only in the manner shown was it found possible to distribute the weight almost equally on shoulders and hips. When the soldier is completely equipped, the weight of the knapsack now bears partly on the shoulders, and partly on the third cartridge-pouch, placed on its lower edge. The front part of the shoulder-strap engages with the two ball-bags, each of which contains thirty rounds. The knapsack, so far as regards its exterior appearance, is not greatly changed. It is somewhat thinner, while the side-pockets for cartridges, and the back-flap, the so-called "blinker," are entirely dispensed with.

The construction of the haversack is, however, entirely new. It is made of water-tight linen, and is of the same exterior dimensions as the knapsack, so that it may be fixed by a locking-pin between the knapsack and its flap. By this arrangement the rations are com-

pletely separated from the contents of the knapsack. The haversack is constructed to carry three, or, if required, four days' rations. The most important point in connection with this part of the equipment is that it may be carried without the knapsack on the straps provided for the latter. In outpost duty, and especially in siege operations, when it frequently happens that the knapsack must be left behind in the cantonment or bivouac, the haversack may in future be carried alone, an arrangement entailing a considerable diminution of weight, and a corresponding increase of efficiency. This kind of equipment will in future be known as *Sturmgepäck*.

The waist-belt is not altered, except in colour. White is now entirely superseded by dull black for all straps connected with the equipment. The leather of which



LIFTING THE EQUIPMENT.

the waist-belt is made is somewhat stouter than before, to resist the greater strain now laid upon it. The bayonet-frog is slightly reduced in weight.

The new ball-bags differ completely from their predecessors. Every man now carries in front two ball-bags, each with thirty cartridges arranged in three rows of ten. The "keepers," by means of which they are fastened to the waist-belt, are now placed in the middle, and the pouches do not, therefore, now hang as before, when they were found very inconvenient in rapid movement. Besides these two ball-bags, every man possesses a third pouch, carried, as has been pointed out, on the back, immediately under the knapsack. It contains two packets of cartridges of twenty each, and is never to be used directly for loading. It is to be employed only to replenish the two front bags as they become empty. Every non-commissioned officer is supplied with a special pouch, and two to be carried in front, containing fifteen rounds each.

The bread-bag hitherto used, which has been the subject of many complaints, both in manœuvres and actual warfare, is entirely changed. It now consists of brown water-tight canvas, and has, in the interior, two compartments, completely separating eatables and smokeables. As a rule, it will be joined to the waist-belt by two keepers; but a carrying strap with a buckle,



PLACING ON THE EQUIPMENT.

by means of which it may be carried in bivouac after the rest of the equipment is laid aside, is also provided.

This strap has, however, a second purpose to serve. When the knapsack is detached, but the straps and heavy cartridge-pouches still remain, it is intended to facilitate the carrying of the latter, by placing it round the neck and allowing its two ends, which are provided with hooks, to engage in the eyes of the ball-bags. Furthermore, on the upper rear extremity of the bread-bag a ring is fixed, on which the water-bottle may be hung.

The helmet is not much altered, but the change has by no means improved its appearance. Its weight is, however, considerably reduced, and the two ventilating-holes in the spike have been increased to five. The Guards and Grenadiers retain the old helmet.

The changes in the canteen, which has been somewhat lightened, are unimportant. The encircling strap of the spade case is now abolished, and the tool is carried on a keeper on the belt, next to and in rear of the bayonet-frog. This position is said to have been found very comfortable, and the spade is, moreover, instantly accessible.

Although the overcoat does not come under the head of valise equipment, it may be mentioned here, as it is now carried encircling the knapsack. It is prevented from slipping by keepers on the knapsack. The only occasion on which it will in future be carried *en bandoulière*, is when the knapsack is laid aside and the *Sturmgepäck* adopted.

One of the most important innovations is the introduction of lace-up shoes. Each man is to carry, as a temporary substitute for his Blücher boots, a pair of shoes, having uppers of 12 cm. in height, of waterproof canvas. They can be blacked or not, and are extraordinarily light and comfortable. When they are worn on the march, the Blüchers are laid together under the knapsack-flap, the latter being made somewhat long for this purpose.

The principal parts of the new equipment have the following weight:—

	Kilogrammes.	Grammes.
Knapsack	1	300
Haversack		260
Tragegerüst		450
Waist-belt		370
Bayonet-frog		85
Ball-bags (two in front and one behind)	1	130
Shoes	1	250
Helmet (complete)		550
Canteen		800
Bread-bag		350
Various		600
Total	7	145

The total weight of the new equipment is therefore 7·145 kg., or about 15½ lbs.

The prices are, so far as can be ascertained, as follow:—

	s.	d.
Knapsack	12	6
Haversack	2	6
Tragegerüst	4	9
Waist-belt and bayonet-frog	3	3
Ball-bags	13	6
Helmet	7	6
Bread-bag	3	4

Having glanced somewhat briefly at the principal points of the new equipment, it only remains to point out its special advantages. All the drawbacks complained of by the medical officers have been avoided. It is constructed on a complete system of balance, so that the total weight of the pack is borne equally by shoulders, hips, and breast. The last, however, is still completely free, and breathing quite unhindered. By this arrangement the use of the rifle for firing in all positions is greatly facilitated. If the soldier wishes to cool himself on the march, he can open his belt and tunic without altering the position of the knapsack. He can even fall out for necessary purposes without laying aside his pack. At the same time, the fitting-on and removal of the pack is greatly facilitated, as all parts are intimately connected with one another, rendering the man much more ready in case of alarm than he is at present. If we add that the number of cartridges is increased by twenty, without any addition to the total weight of the equipment, it is apparent that the utmost has been done, not only to increase the marching powers of the German infantry, but to render them formidable in action.

EUROPE IN ARMS.

No. IX.—THE RUSSIAN ARMY.

By C. J. L'ESTRANGE.

(*Continued from p. 398, vol. vi.*)

Artillery.

THE artillery has undergone fewer changes of late than any other arm in the Russian service. Except in a few details, its organization has not been altered for several years.

A brigade of field artillery of 6 batteries is attached to each of the 48 infantry divisions of the standing army. The battery consists of 8 guns in war and 4 in peace; giving a war strength of 2,304 guns for the 288 field batteries. Besides these, there are three independent brigades of field artillery—one in Turkestan, one in Eastern and one in Western Siberia. Of the 48 brigades attached to infantry divisions, three (numbered 1 to 3) belong to the Guard; four (three numbered from 1 to 3, the fourth called the Caucasian) to the Grenadiers; and 41 (numbered from 1 to 41) to the Line.

The field artillery brigades are composed of heavy, light, and mountain batteries, somewhat unequally divided. Thus the brigades of the Guard and Grenadiers, and 35 of the Line (1st to 18th, 22nd to 37th, and the 40th) have 2 heavy and 4 light batteries each. The remaining six have 2 heavy, 2 light, and 2 mountain batteries. The Turkestan brigade has 2 heavy, 3 light, and 2 mountain batteries; the Western Siberian brigade 3 light and 1 mountain batteries; the Eastern Siberian brigade 2 light and 2 mountain batteries. There are thus, in Europe, 96 heavy, 180 light, and 12 mountain batteries; in Asia, 2 heavy, 8 light, and 5 mountain batteries.

A heavy battery consists in peace of 6 officers, 16 non-commissioned officers, 3 trumpeters, 1 volunteer, and 175 gunners combatant, and 13 non-combatants—in all 214. In war it is raised to 6 officers, 21 non-commissioned officers, 3 trumpeters, 1 volunteer, and 212 gunners combatant, and 22 non-combatant—in all 265.

A light battery consists in peace of 6 officers, 16 non-commissioned officers, 3 trumpeters, 1 volunteer, and 147 gunners combatant, and 13 non-combatants—in all 186. The war strength is 6 officers, 21 non-commissioned officers, 3 trumpeters, 1 volunteer, and 180 gunners combatant, besides 22 non-combatants—in all 233.

The mountain artillery of Russia is brigaded, as has been said, with field and horse batteries; but its organization differs in many points from that of the corresponding arm in other European services. The 6 field artillery brigades, comprising each two mountain batteries, are those belonging to the corresponding infantry divisions (19th, 20th, 21st, 38th, 39th and 41st) of the Caucasian army. The Turkestan brigade comprises 2 mountain batteries, the Eastern Siberian brigade 1 mountain battery, the Western Siberian brigade 1 mountain battery and a half mountain battery. The two horse mountain batteries—one belonging to the Turkestan, the other to the Western Siberian brigade—are peculiar to Russia. They were created by Skobeleff in June 1881 after the Geok-Tepe campaign. The total number of mountain batteries, including the two horse batteries is 18½, with a war strength of 152 guns. The greater number of these are kept permanently either on the increased or war establishment.

The peace strength of a mountain battery is 6 officers, 20 non-commissioned officers, 4 trumpeters, 112 gunners, and 37 non-combatants, with 28 horses. On the increased establishment the number of gunners is raised to 128, that of the non-combatants to 49, of the horses to 76; on the war establishment to 185, 114, and 141 respectively. The officers, non-commissioned officers, and trumpeters are in all cases the same.

The war strength of a horse mountain battery is 7 officers, 25 non-commissioned officers, 4 trumpeters, 177 gunners, and 61 non-combatants, with 243 horses. It is expected that the immense number of horses will form a great drawback to the employment of these batteries, more than counterbalancing the gain in rapidity of movement.

The ordinary mountain battery is provided with 96 rounds per gun; the Baranowski battery with 136, and the horse mountain battery with 42 rounds.

Two horse-artillery batteries, formed either from the Regulars or the Cossacks, are attached in war to each Cavalry Division. A few exceptions are made. The Guard Cavalry Divisions have, for instance, 3 batteries each, while the 2 Caucasian Cossack Divisions have only 1 each. Of a total of 40 horse-batteries, 28 belong to the regular army and 12 to the Cossacks. The

28 regular batteries—5 Guard and 23 "Line" have the following effectives :—

Peace.—5 officers, 14 non-commissioned officers, 3 trumpeters, 1 volunteer, and 149 gunners combatant, with 15 non-combatants—in all 187.

War.—5 officers, 18 non-commissioned officers, 3 trumpeters, 1 volunteer, and 158 gunners combatant, with 29 non-combatants—in all 214.

In Russia, as in other countries, the battery is the smallest tactical unit. It is divided into two half batteries of two "divisions" each, the division consisting of 2 guns. In the organization of the battery, no fewer than three establishments are recognized: the peace establishment, when only four guns and none of the ammunition-wagons are horsed; the increased establishment, when 4 guns, 4 ammunition-wagons and 1 spare gun-carriage are horsed, and 4 extra horses maintained; and the war establishment, when all 8 guns and the full number of ammunition-wagons are horsed.

Armament.—The material of the Russian artillery has been vastly improved since the last war. In that struggle the armament of this branch was found to be almost as far behind the age as that of the infantry. The old bronze guns were quite unable to cope with the Turkish steel pieces of Krupp, despite the greater rapidity of fire on the Russian side. The consequence was that, throughout the campaign, the Russian infantry was unable to rely upon the artillery for adequate support; and the latter was almost powerless against the Turkish field-works and rifle-pits. Immediately on the conclusion of the campaign, a thorough inquiry was made, resulting in the complete re-armament of the field and horse artillery. The machine-gun batteries were abolished, and replaced by light field batteries; and on 28th May, 1878, the armament was definitely fixed as follows:—For the heavy batteries, a 4·2 in. steel gun; for the light and horse batteries, a 3·42 in. steel gun; for the mountain batteries, a 2·5 in. bronze gun.* By far the greater part of the new armament was supplied by Krupp; the remainder by the Obukov works.



Dragoon of the Guard.

The steel field-guns are very similar to those now in use in Germany. They consist of a wrought tube and cast jacket, with the Krupp cylindro-prismatic wedge-breech mechanism, and the Broadwell obturator. The length of the bore is 17·1 calibres in the heavy gun, 16·9 calibres in the light, and 15·5 calibres in the horse-

* In 1883 the 2·5 in. bronze gun was partly replaced by a steel Baranowski gun of the same calibre, and since then a new steel gun (also 2·5 in.) has been introduced.

artillery gun. All three guns are rifled in 24 grooves with progressive twist. The projectiles weigh 27 lbs. 8 oz. for the heavy gun, and 15 lbs. 2 oz. for the light and horse-artillery gun, the charges being 4 lbs. 1 oz. and 3 lbs. respectively, giving velocities of 1,200 ft., 1,450 ft., and 1,350 ft. per second. The extreme ranges are 7,000 yards for shell, and 3,500 for shrapnel. The carriages for the field guns are constructed of iron and steel, the wheels only being of wood. A slight difference exists between the horse and field artillery carriages, in that the former have no axle-tree seats, and are made to carry four instead of two rounds of ammunition in the boxes.

The ammunition-wagons are of iron construction, requiring in war six horses. Each heavy battery has in war 16, each light battery 12, and each horse battery 9 of these wagons. The total field supply of ammunition is as follows:—

Per Gun.	Shell.	Shrapnel.	Case.	Total per Gun.
Heavy Battery:				
In the Gun Limber .	7	9	2	18
In the 16 Ammunition-wagon Limbers .	14	18	4	36
In the 16 Ammunition-wagon Bodies .	36	36	0	72
Total per Gun .	57	63	6	126
Light Battery:				
In the Gun Limber .	13	15	2	30
In the 12 Ammunition-wagon Limbers .	19·5	22·5	3	45
In the 12 Ammunition-wagon Bodies .	45	45	0	90
Total per Gun .	77·5	82·5	5	165
Horse Battery:				
In the Gun Limber .	13	15	2	30
In the 12 Ammunition-wagon Limbers .	19·5	22·5	3	45
In the 12 Ammunition-wagon Bodies .	45	45	0	90
Total per Gun .	77·5	82·5	5	165

The above figures show the extreme importance attached in Russia to shrapnel. The projectiles weigh 25 lbs. in the heavy gun, and 14 lbs. in the light one, and contain 290 and 170 balls respectively, with charges of 3¾ oz. and 2½ oz.

The fortress artillery of Russia consists of 42 battalions, or 197 companies. In peace, there are three siege parks, two of 400 guns and one of 200 guns. These guns would be served in war by fortress artillerymen.

Engineers.

The Russian Engineers consist of the following troops:—

17 Battalions of Sappers,
8 Battalions of Pontoneers,
1 (Turkestan) Sapper Half Battalion,
1 (West Siberian) Sapper Company,
1 (East Siberian) Sapper Company,
6 Railway Battalions,
16 Field Telegraph Parks,
6 Field Engineer Parks,
2 Engineer Siege Parks,
1 Electrical Instruction Company,
4 Torpedo Companies.

These troops form 6 brigades—5 of which belong to Europe and 1 to the Caucasus—besides the Asiatic corps, which are not brigaded. Of the 17 Sapper battalions, 1 belongs to the Guard, 1 to the Grenadiers, and 2 are Caucasian.

A sapper battalion consists in peace of 5, in war of 4 companies. The extra company is used in war to form cadres for two reserve companies. The strength of the battalion is 28 officers and 654 non-commissioned officers and men in peace, and 26 officers and 1,040 non-commissioned officers and men in war. A Pontoon battalion consists, in peace and war, of 2 companies, having in the former case a strength of 14 officers and 297 non-commissioned officers and men, in the latter of 15 officers and 590 non-commissioned officers and men.

Of the 6 railway battalions, 4 were recently attached to the four first brigades of Sappers, and 2 were employed in the construction of the Central Asian railway.* By an Imperial Ukase of August last, this organization has been modified provisionally until 1891. The second, third, and fourth battalions are to be detached from the Sapper brigades to form an independent Railway brigade, for which a staff has been recently created. A railway battalion consists in peace of 5 companies (2 for construction, 2 for working, and 1 of cadres for the formation of reserve companies on mobilization); in war of 4 companies. The construction and working companies have a peace strength of 123 men, excluding officers, and a war effective of 260. The mixed company of 101, forms 4 companies of reserve—3 working and 1 construction—in the event of war. Excluding the two battalions in Central Asia, the Russian army possesses in peace 4 railway battalions of 20 companies and 2,372 men; in war 4 field and 4 reserve battalions with 32 companies and 8,320 men, in each case excluding officers. Of these 8 working and 8 construction companies will in war form part of the active army; the rest will be employed in the *Etappen* service.

* The first Transcaspian battalion was formed in 1880, the second in 1885.

The field telegraph parks form part in peace of the Sapper brigades. In war they are detached and placed under the command of the chiefs of the staffs of the various *corps d'armées*. They are intended to maintain communication between the army in the field and head-quarters. Each park is supplied with sufficient material for the construction of 65 versts, or 43½ miles of telegraph line. In order that trained officers may not be wanting in war, officers are sent from sapper battalions for a short course of instruction in military telegraphy.

casian. In peace they form part of the Sapper brigades, in war they are under the command of the chief of the *corps d'armée* to which they are attached.

The Engineer Siege Parks, stationed in peace at Kieff and Dünaborg, are each divided into four sections. The section is provided, even during peace, with all material necessary for the siege of a fortress.

The Electrical Training Company, stationed in St. Petersburg, is intended to instruct non-commissioned officers and men in electricity in its application to the



General of Artillery.

The peace strength of a park is 4 officers and 44 non-commissioned officers and men, who are increased in war to 6 officers and 267 non-commissioned officers and men.

The Field Engineer Parks, intended for the rapid supply of tools and instruments to the army in the field, are each divided into two sections, which are again subdivided into five detachments. Each of the 10 detachments thus formed is supplied with sufficient materials for a division of infantry and a company of sappers. Of the 6 parks, the first 5 are European, the last Cau-

telegraph and mine services. In peace it is about 200 men, in war about 300 strong.

Of the 4 torpedo-companies, 2 are on the Black Sea, at Odessa and Sebastopol, and 2 on the Baltic at Cronstadt and Sveaborg. A staff of 1 colonel, 1 lieutenant-colonel, 2 captains, 4 subalterns, 1 engineer official, 3 clerks, and 2 engineer conductors, exists for each coast. The strength of a company is 8 officers and 269 non-commissioned officers and men in peace, and 11 officers and 269 non-commissioned officers and men in war.

The Engineers rank very high in the Russian army.

They were raised by the Emperor Nicholas to a position nearly equal to that of the Guards, which they have never since lost. The equipment of the Engineers is similar to that of the Infantry, but the armament differs in that the former carry the short Berdan rifle and bayonet. The non-commissioned officers all carry revolvers; those of the Field Engineers Park and the Pontoon battalions wear also short cavalry swords.

Cossacks.

The Cossacks owe their origin to the disturbed state of Russian society during the period of Tartar bondage. The valley of the Lower Dnieper had, long before the Mongol invasion, formed a safe refuge for the outcasts of Eastern Europe; and when life and property became more than usually insecure, the inhabitants of Little Russia, preferring the hardships of desert life to the uncertain dangers of a foreign occupation, emigrated by thousands to the island fastnesses of the Dnieper, from which they waged war by turns with all their neighbours. Mounted on fleet and hardy horses, inured to privation, trained to arms by almost incessant war, and recruited from the most hardy and adventurous inhabitants of Russia and Poland, the Cossacks of the Ukraine soon became formidable and troublesome neighbours. Their raids were skilfully planned, rapidly executed, and almost invariably successful. Before a sufficient force could be summoned to oppose them, they effected, as a rule, a safe retreat to their strongholds.

The Poles were the first to recognize the use to which the Cossacks might be turned by making them the guardians rather than the assailants of the Southern frontier of the kingdom; and, with this object in view the most tempting terms were offered. By patents of nobility to their chiefs, high pay and other privileges to themselves, a large body of Ukraine Cossacks were persuaded to take service under the Polish Crown; but a considerable number of their companions still preferred the freedom of the wilderness. The former served their new masters faithfully until restrictions were placed upon their liberty of thought and action,



COSSACK OF THE URAL.

when a tide of immigration set in towards Russia which eventually deprived Poland of her best irregular cavalry and the most trustworthy defenders of her frontiers. The immigrants were settled by the Czar near Bielgorod, and, in 1653, formed 5 regiments in the Russian army.

In the meantime, the Cossacks left behind on the Dnieper had grown into a powerful confederation, united by the closest ties of mutual dependence. A vow of celibacy was enjoined, but a noteworthy feature of their organization was, that although everyone was welcome, all were free to leave the brotherhood without fear of the resentment of Peter the Great. Their defection was punished with the customary implacability of the great Czar, who broke up and dispersed the whole confederacy. A great number fled to the Crimea, and eventually, on the conquest of that country by Russia, they were settled on the Kuban, as a bulwark against the Caucasian hillmen.

Besides the Cossacks of the Ukraine, various bands of adventurers were formed throughout the Empire, but principally on the frontiers. When the Mongol yoke was thrown off, their freedom was threatened by the Russian Government, and a vast number settled on the



COLONEL OF THE LINE

molestation. The Confederation were signally impartial in the choice of allies and enemies. At one time they lent a helping hand to the Poles, at another to the Russians, the Turks, occasionally even to the Tartars. They sold their swords, in fact, in the best market. A serious quarrel with the Poles led them eventually to place themselves under the protection of Russia, which acquired a large part of the Cossack territories by the peace of Radzine, in 1681. About a quarter of a century later the action of their Hetman, Mazeppa, who deserted the Russian cause for that of Sweden, aroused banks of the Volga and Don, where, although nominally in the jurisdiction of their powerful neighbour, they were practically independent. Gradually, however, they were overtaken by the irresistible tide of Russian expansion, and in the reign of Ivan the Terrible were incorporated into the Russian national army under the title of the Army of the Don. They do not seem at first to have taken kindly to the restraints of their new position. Seven years after their incorporation they had become so troublesome that the Czar sent a considerable army against them, under General Murasch-

kin. On the approach of the latter, the most active participants in the rising took to flight. One band, under Yermak, overran Siberia, which was presented as a peace-offering to the Czar, another occupied Uralsk, and a third disappeared into the Caucasus. Those who still remained on the Don rose at frequent intervals against what they regarded as the Russian yoke; but each revolt was followed by merciless punishment, and a serious curtailment of privileges. The result of the last great insurrection under Pugacheff, was to bind the Cossacks indissolubly to the Russian Empire, which they had done so much to extend. Since then the whole of the Cossacks settled in Russian territory have formed an integral part of the Imperial army. During the Seven Years' War their almost unprecedented barbarities rendered them the terror of the Prussians. Their mode of warfare is said to have suggested to the unfortunate inhabitants of Northern Germany an invasion of the Huns rather than a civilized army. In the French retreat from Moscow, they contributed, perhaps, more than any other branch of the Russian army to the demoralization of the French, harassing the remnants of the Grand Army by a ceaseless series of rapid attacks and equally rapid retreats.

In 1819 Alexander I. appointed a committee of inquiry for considering the state of the army of the Don, but the charges then projected were not carried out until 1835. In that year the Cossacks were organized on a more regular system than had up to that time been in force, and very few alterations were made until the complete re-organization of 1875.

The whole Cossack forces of Russia were then divided into two classes, the Active troops and the Opoltschenie. The Cossack Opoltschenie, like that of the regular forces, includes all men not enrolled in the Active army or its Reserve. The latter is divided into three sections—preparatory, field, and reserve.

On completing his seventeenth year, every Cossack physically fit for service (with the exception of those exempted for family reasons very similar to those in force in the regular army) joins the preparatory class for three years. During the first year, the recruit is exempted from personal service, but is required to provide himself with a horse, arms, and equipment at his own expense. The Berdan rifle forms the only exception to this rule. Half the cost of this weapon is borne by the State, half by the special military fund of the Cossack districts. During the remaining two years in the preparatory category, the recruit, who is not yet required to leave his native village, is expected to become proficient in the use of his arms.

On completing his term in the preparatory class, the Cossack enters the field force for a period of 12 years, which is again subdivided into three terms of 4 years. The first of these terms is spent either in one of the 4 Cossack squadrons of the Guard, in one of the first 20 regiments of Cossacks of the "Line," or in one of the first 7 Cossack field batteries. The second term is passed in one of the Cossack regiments numbered from 21 to 40, or in one of the field batteries numbered from 8 to 14; the third term in one of the Cossack regiments numbered from 41 to 61, or in one of the field batteries numbered from 15 to 21. The first term is the only period of active service proper. During the second and third terms both officers and men are on furlough, but liable for active service on a moment's notice; while in the second



GRENADIER OF THE GUARD.

category they are required to have their horses, arms and equipment constantly ready; while in the third, to keep their equipment in readiness, but to provide horses only in case of mobilization. The men of these catagories are only called up for a few periods of three weeks' training. On completing his term of service in the field class, the Cossack passes into the Reserve, in which he remains five years, without further training. During this period he may be called upon to recruit the ranks of the active army, or to join an independent Cossack

reserve regiment. On serving this term, he concludes his service with four years in the Opoltschenie, after which the army has no further claim upon him.

The male population of the various Cossack territories is estimated at 1,150,000. Of these nearly one-fourth belong either to the preparatory, field, or reserve categories of the Active Army, and a considerable number to the Opoltschenie. Of the 10 Cossack Voiskos, that of the Don is by far the most considerable. The male population of the Don territory is about 425,000, furnishing about 105,000 men—22,000 in the preparatory, 63,000 in the field, and 20,000 in the reserve class—excluding the Opoltschenie. In peace the Don Voisko maintains the following troops :—2 regiments of Cavalry of the Guard, of 4 squadrons each ; 15 regiments of Cavalry of the Line, of 6 sotnias each ; 1 battery of Horse Artillery of the Guard ; 7 batteries of Horse Artillery of the Line, and 9 local detachments. In war these are increased to 3 regiments of the Guard, of 6 squadrons each ; 45 regiments of the Line, of 6 sotnias each ; 30 independent sotnias ; 1 battery of Horse Artillery of the Guard ; and 22 batteries of Horse Artillery of the Line, including 1 depôt battery of Horse Artillery.

A Cossack regiment of the Guard has, in peace, 4 squadrons, with 41 officers and 610 non-commissioned officers and men ; in war, 6 squadrons, with 42 officers and 968 non-commissioned officers and men.

In order to obtain cadres for the corps raised from the 2nd and 3rd categories, the Cossack cavalry regiments and Horse Artillery batteries of the Line are exceptionally organized in peace, having a considerably larger effective, both in officers and men, than in war. The peace effective of a Cossack cavalry regiment is 42 officers and 920 non-commissioned officers and men combatant, with 3 officers and 48 men non-combatant. On mobilization, this strength is reduced to 25 officers and 890 men combatant, and 3 officers and 83 men non-combatant. A Horse Artillery battery of the Line has similarly, in peace, 13 officers and 210 non-commissioned officers and men ; in war, 5 officers and 219 non-commissioned officers and men. In peace, only the 7 active batteries have 6 guns horsed ; in war all 21 batteries have 6 guns, 12 ammunition-wagons, and 1 spare gun-carriage horsed.

The Kuban Voisko, next in importance to that of the Don, furnishes about one-half the number of men ; the Orenburg Voisko about one-third. The other Voiskos, although numerous, are individually unimportant.

The Cossacks of the present day, although nominally irregular troops, differ very little from the regular cavalry. The regiments of the 1st Category have been practically regularized by forming part of the Cavalry Divisions, and as the men of the 2nd and 3rd Categories have all passed through the ranks since the union took place,* almost the whole of the present Cossack reserves may be regarded as regular troops.

Including about 32 sotnias of irregular troops, the Cossacks will furnish, in war, 140 regiments of cavalry, with 834 squadrons—in all, about 120,000 combatants. This still leaves over 100,000 men, besides the Opoltschenie, available for filling gaps in the Active Army.

The Cossacks are all armed with rifle and sword. The front rank carry, in addition, the lance—the traditional Cossack weapon—of which the rear rank were deprived in 1883. The rifle and sword are similar to those of the dragoons, except that the former is not



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provided with a bayonet. The Cossacks of the Caucasus, owing to the exceptional nature of the country, are not provided with lances; their armament consists, in addition to the sword, of a rifle, slung in a fur-skin case, a pistol and a dagger, carried on the waist-belt.

Military Districts.

For purposes of military administration, Russia is divided into 14 districts, besides the Don Cossack territory. The head-quarters of these districts are—St. Petersburg, Helsingfors, Vilna, Warsaw, Kief, Odessa,

* Cossack regiments first formed part of the cavalry divisions in 1875.

Kharkov, Moscow, Kazan, Tiflis, Omsk, Irkutsk, Tashkend, and Chabarovka. Each district is administered by a general officer, bearing the title of "Commander-in-Chief of the Troops." He has authority over the active and territorial troops, and all military establishments in his district.

The 164 regiments of the Line are recruited on a compound system. Most of their recruits are drawn from the 164 districts into which the central territory of European Russia is divided; but a certain percentage is furnished by the surrounding territories. The 164 districts are mapped out, so far as possible, to coincide with the smallest political subdivisions of the country; and their extent is so calculated that each furnishes about the same number of men. One of these districts serves as a principal recruiting ground for each Line regiment, supplying about 80 per cent. of the total number of men. The remaining 20 per cent. are drawn from the various parts of the Empire outside these circumscriptions — the political Governments of St. Petersburg, Esthonia, Livonia, Courland, Kovno, Vilna, the Kingdom of Poland, Bessarabia, Astrakhan, Orenburg, Oufa, Perm, Vologda, Archangel, and Olonetz—constituting a zone of variable depth surrounding the central districts—besides Russia in Asia and the Caucasus. The central recruiting districts are grouped in fours in such a way that each group corresponds to a Division of the Active Army. The Field Artillery of the division draws its recruits and reservists from the same group. The other branches of the Artillery—horse batteries and garrison battalions—besides the Cavalry, Engineers, Rifles, &c., receive their recruits, and reservists from all parts of the Empire. The same rule applies to all branches of the Guards and Grenadiers, and to the local troops of Russia in Europe and Asia. The Reserve battalions are recruited in the same way as those of the Active field army. For each Reserve battalion existing in peace, there are one, two, or three districts, which are required to furnish about 80 per cent. of the necessary number of recruits. The rest come, as in the Line, from the other parts of the Empire outside the 164 central districts.

In each district there is an officer bearing the title of "Commander of the District Troops." By "district troops" is understood in this case, all troops except those of the Active Army stationed in the district, that is to say reserve, depôt, and local corps. In addition to the command of these troops, this officer has charge of all operations connected with recruiting, the mobilization of the reservists, and the Opoltschenie. He is assisted by a considerable staff of officers and men.

The Corps d'Armée.

Army Corps organization is a very recent innovation in the Russian army. It was projected in 1875, applied to the Russian army during the war with Turkey, and retained at the close of the struggle As at present organized, a Russian *corps d'armée* may consist of either two or three infantry divisions and one cavalry division, with artillery and engineers in proportion. When the scheme is complete, probably in 1889, the whole Empire will have been divided into Army Corps districts, and the proportion of infantry will be uniformly two divisions. The composition of a *corps d'armée* of two divisions is now as follows:—



Officer, Infantry of the Line.

	Officers.	Non-commissioned Officers and Men.
Staff	26	33
2 Divisions of Infantry .	906	39,248
1 Division of Cavalry .	182	4,574
1 Battalion of Sappers .	26	1,040
1 Flying Artillery Park .	5	321
1 Local ,, ,, .	3	53
1 Field Telegraph Park .	6	265
½ Pontoon battalion .	8	296
½ Cossack sotnia . .	1	64
	1,163	45,894

Of the above total, about 150 officers and nearly 7,000 non-commissioned officers and men are non-combatant. A *corps d'armée* has in addition about 100 guns, 14,000

horses, 500 ammunition-wagons, and 2,000 transport vehicles of from 1 to 6 horses each.

There are in all 19 *corps d'armée* in the Russian army, 17 of which are European, and 2 Caucasian. Of these 5 have 3 divisions of infantry, 1 (the Guard) has 2 divisions of cavalry, and 2 have no cavalry.

The Rifle brigades, except in the Guard, and also the Sappers, are not included in the *corps d' armée*. The cavalry divisions have usually the same number as the Army Corps to which they are attached. The Army Corps is commanded either by a general or lieutenant-general.

Officers, Non-Commissioned Officers, and Privates.

Nearly four-fifths of the infantry and cavalry officers of the Russian army are obtained through the voluntariat. Volunteers are allowed to attend the Junker schools when preparing for a commission; and after a two years' course are promoted to the rank of sub-lieutenant or ensign, according to their position in the final examination. There are 16 of these schools, 11 for the infantry, 2 for the cavalry, and 3 for the Cossacks, with over 4,000 students.

The regimental officers of the Russian army are of seven grades: "sub-ensign"; sub-lieutenant or cornet; lieutenant; second captain or second Rothmistr (also called Schtabscapitaine or Schtalsrothmistr); captain or Rothmistr; lieutenant-colonel; and colonel. The rank of "sub-ensign" or *etendard younker* was instituted in 1880. Officers holding this rank act as sub-lieutenants or cornets; but they only wear the chevrons of non-commissioned officers. The rank of major was abolished in 1884, all majors at that date being promoted to the rank of lieutenant-colonel. General officers are of four grades: major-general or brigadier-general; lieutenant-general or general of division; general of infantry, cavalry, artillery or engineers, —according to the branch of the service whence the holder originally came,—commanding a *corps d'armée*; and finally field-marshal. Only two officers hold the last rank in the Russian army.

Officers of the Reserve are obtained by promoting the retired non-commissioned officers of the Line, as in other European armies. In 1882 a corps of reserve officers was created. All officers who retire before having served their statutory term are enrolled in this corps, which will supply several thousand officers at a moment's notice.

A wide gulf exists in Russia between officers of the Guard and officers of the Line. The difference is not only one of birth and wealth, but of education. The social barrier between a large proportion of Line officers, especially those of subaltern rank, and their equals in the Guard, is almost as great as between commissioned and non-commissioned rank in other countries.

The want of non-commissioned officers—a drawback which seems almost inseparable from universal military service under the present conditions—is much felt in Russia. In spite of bounties which, from the Russian point of view, may be considered liberal—in spite, too, of the fact that a non-commissioned officer after five years' service is recommended for, and after ten years' service has a right to, employment under Government, the number of re-engagements rarely exceeds 3,000.

The non-commissioned officers of the Russian army are of three grades, corresponding to corporal, sergeant, and sergeant-major. They are divided, however, into two categories of widely different position, according to the terms of their enlistment. Those who enter the service as volunteers may be promoted to the rank of non-commissioned officer after two months, four months, or one year, according to their educational attainments, and may become officers after five months, ten months, or four years respectively, of course after passing the necessary examinations. Men who enter the army in the ordinary way may become non-commissioned officers after two years' service, and officers after six years. As a matter of fact, however, these men are seldom made officers; and only in garrison corps on the farthest confines of the Empire, where their condition is anything but enviable.



PRIVATE OF INFANTRY.

The Russian soldier, although he appears slovenly and somewhat stupid to the West European observer, possesses many valuable qualities. Obedience is with him intuitive, hardship and privation are borne with equanimity, and his steadiness in action is scarcely surpassed; but, in spite of the long term of service, the average Russian conscript is by no means well trained. This may be attributed to a variety of causes. The garrisons are for the most part small and ill provided; the recruits come in irregularly from considerable distances; and the number of men per company available for training them, although nominally 100, is reduced as



SAPPER.

a rule to less than 60 by numerous detachments. Drill and slight musketry instruction last from December to May, when the isolated garrisons are united at regimental head-quarters for battalion, regimental and other manœuvres, and for the only systematic course of rifle practice.

Strength of the Russian Army.

The last official statisties on the state of the Russian army were published in the autumn of 1886. They give in detail the strength of the army on 1st January 1885, since when, with the exception of the formation of a few local troops in Transcaspia, no important change has taken place.

The regular standing troops at that date were as follows:—

	Non-commissioned Officers and Men.
Active Army	591,872
Reserve Cadres	79,355
Local Troops (including Fortress Artillery)	77,768
Depôt Troops	16,197
Gendarmerie and other auxiliary corps not belonging to the Active Army proper	41,817
Total . .	807,009

To these non-commissioned officers and men must be added 30,390 officers of all ranks, giving a general total of standing troops of 837,399. To this total should also be added a further portion of the fighting element, consisting of Cossacks and other Irregulars, numbering 2,169 officers and 44,920 non-commissioned officers and men—giving a grand total of standing troops, 884,488. Deducting the 41,817 gendarmerie and other auxiliary corps not belonging to the standing army proper, we have 842,671 officers, non-commissioned officers, and men forming the actual standing army on a peace footing.

The regular Reserves consisted, at the same date, of 1,437,559 officers, non-commissioned officers, and men, in addition to the Reserve Cadres, constantly maintained; those of the Cossacks, of 150,000 men, or a total of 1,587,559.

The First Line of the Russian Army is, therefore—

Active Standing Army . . .	842,671
Reserves (in addition to those maintained in peace) . . .	1,587,559
Total . .	2,430,230
The Second Line of the Russian Army consists of the Opoltschenie, the first Ban of which alone is likely to be called up in war. This would number . . .	2,090,000
Grand Total . .	4,520,230

Of these, probably about 2¾ millions have received, or are receiving, military training.

C. J. L'ESTRANGE.

THE OLD 90TH LIGHT INFANTRY AND ITS HEROES.

By PERTHSHIRE GREYBREEK.

(*Continued from page 340, vol. vi.*)

ROWLAND VISCOUNT HILL, G.C.B.

"In many a distant warrior land
His bright memory lingers still,
The gentle heart, the unconquer'd brand,
Of the gallant Sir Rowland Hill."

IN my biographical sketch of Lord Lynedoch I have related how, when that gentleman was serving in a private capacity as volunteer aide-de-camp to Lord Mulgrave at the siege of Toulon, in 1793, he fell in with a young unattached captain, late of the 53rd, Rowland Hill by name, and how, on Mr. Graham securing a letter of service, empowering him to raise a regiment for service against the French, he at once offered the majority in the corps to his quondam comrade of Toulon. Hill was then a soldier of some four or five years' service, but, in point of age, he was six and twenty years junior to his new colonel. Hill's career, prior to joining the 90th, can be summed up in a few words; his subsequent career is a record of our wars with France, from Egypt to Waterloo.

He was born in 1772, and was destined by his parents for the law; he was the second of a family of sixteen, and his father, though a country squire of some property, was not in a position to do more than launch his younger sons in life. Hill, however, showed such a strong predilection for the army that his father, conceding to his wishes, procured him a commission in the 38th Foot, and then despatched him to Strasburg, with a view of his mastering French and German. In January 1791 he was promoted a lieutenant in Captain Broughton's Independent Company, and in March of the same year, transferred in the same rank to the 53rd, but continued in Strasburg until January 1792, when he joined his regiment in Edinburgh. Promotion was not difficult to attain in those days, when Europe was one vast camp, and in March 1793 Hill succeeded in raising an independent company, and thus earned his promotion. Belonging to no regiment, he obtained leave to proceed to Genoa, and whilst there was appointed A.D.C. to Lord Mulgrave at Toulon. Here, as I have said before, he met Mr. Graham, and in the following year was gazetted Major of the newly-raised 90th Regiment. Hill accompanied the 90th in the abortive expedition to the Isle Dieu as junior lieut.-colonel, and in the same capacity served at the capture of Minorca. On the 1st January 1800, Hill was promoted colonel, and on the 24th May of the same year embarked at Spithead to rejoin the 90th, then at Gibraltar. In command of the 90th, Hill served throughout the Egyptian campaign of 1801. His diary pithily describes the operation:—

"*January* 1, 1801.—Marmora: all well; wrote to Prees; preparing for our expedition against the French troops in Egypt.

"*February* 1.—Still at Marmora; dined with Lord Keith; preparations for our departure.

"*February* 22.—Sailed from Marmora with a fleet of about 200 sail, some Turkish, some Greek.

"*February* 23.—Fine wind, steering for Egypt.

"*March* 1.—Saw Alexandria.

"*March* 2.—Anchored in Aboukir Bay.

"*March* 8.—The landing was gallantly made.

"On the 12th the army advanced, skirmishing with the enemy until dusk. At night, the 90th, which I commanded, and the 92nd were placed along the front of the army. On the morning of the 13th, at six, the British began to move, the 90th as its advanced guard. At this moment a considerable body of cavalry made a spirited and impetuous charge on the 90th, who, with the coolness and intrepidity of veterans, received them unbroken upon the points of their bayonets. The French were obliged to retreat. I was wounded by a musket-ball, which struck the peak of the helmet. After being wounded I was taken on board Lord Keith's ship, where I remained about three weeks, and then returned to the regiment."

By Lord Keith's kindness Hill was removed from the *Cyclops*, to which ship he had been first conveyed, to the flag-ship, the *Foudroyant*. Here he shared the cabin with Sir Ralph Abercromby, who, mortally wounded in the engagement of the 21st March, was brought on board the flag-ship to die. Hill thus alludes to the sad affair:—

"Remained on board the *Foudroyant* until 14th April. The glorious 21st March, poor Sir R. Abercromby was brought on board. He was in the same cabin with me, and lived one week."

The tedium of his confinement on the flag-ship was relieved by a congratulatory visit from the Captain Pasha, who presented Hill with a shawl, a sabre, and a gold box as a testimony of admiration of the gallant manner in which he had led the 90th on the 13th March.

On the 14th April, Hill rejoined the 90th, and commanded them in a splendid affair on the 10th May, and on the 20th he led the advanced guard, when the British appeared before Cairo. As Colonel of the day on the 21st he received the French officer sent out to

arrange the capitulation, and on the 23rd September he had the satisfaction of embarking for Malta. The regiment, however, remained there but a few short months, and in April 1802 Hill was once more in England.

In August of the same year, the 90th being in Ireland, Hill was promoted Brigadier-General and stationed at Loughrea. At this period the country was in a most disturbed state; alarming rumours were current as to the intentions of the French, and Hill's duties were extremely onerous; he showed, however, considerable tact in their execution, and succeeded in getting into shape the miserable rabble styled Irish militia and yeomanry.

In August 1805 Hill was directed to proceed from Cork with the 8th, 9th, 28th, 30th, 36th, and 89th Regiments to join a force being prepared to land at the Weser, under the supreme command of Lord Cathcart. One of the other Brigade Commanders was Sir Arthur Wellesley, and it was on this bloodless expedition that the life-long friendship of these two heroes received its foundation.

The news of the victory of Austerlitz prompted the English Government to recall our troops from the Continent, and Hill, who had been promoted Major-General in the meantime, was appointed to the command of a brigade, consisting of the 9th, 45th, and 62nd, then lying at Shorncliffe. From Shorncliffe, Hill proceeded to Ireland, and in 1808, to his inexpressible joy, and the great satisfaction of Sir Arthur Wellesley, was appointed to the command of a brigade in the expedition about to sail for Portugal. He was present at the affair of Obeidos, the action of Roleica, and the battle of Vimiero, in all of which Hill displayed the most eminent activity and skill, and earned the warmest praise of his Commander. When Wellesley was recalled to appear before the Court appointed to inquire into the Convention of Cintra, Hill remained behind, in command of his brigade, and was once more thrown into close association with his old Colonel—still Colonel Graham, now acting as A.D.C. to Sir John Moore, the Commander-in-Chief. With Graham, Hill shared the perils of the march to Salamanca, the danger of the heroic fight at Corunna, and, with his brigade, covered the final embarkation of the troops.

Short time was given the gallant Hill for leisure. On the 17th February he received orders to return to the Peninsula, in command of reinforcements, being despatched to Sir John Craddock, and, at the same time, as a reward for his gallant services in the recent campaign, was promoted to the Colonelcy of the 3rd Garrison Battalion. But Craddock was not destined to remain long in command. Ere the spring had well commenced Sir Arthur Wellesley was once more at Lisbon, and his army, organized in three divisions, ready to recommence operations.

In the memorable passage of the Douro, on the 12th May 1809, Hill, at the head of the 3rd Division, was entrusted with the difficult flank movement in boats from Ovar, and, by his judicious action, earned, as indeed he deserved, the highest praise of his Commander. In this action his brother and A.D.C., Captain Clement Hill, was wounded.

At Talavera Hill's Division was hotly engaged, and he himself wounded in the head. Hill's own version of this affair is worth recording. It was dark on the night of the 27th July when his Division reached the ground it was to occupy, and he was busying himself in pointing out the position to Colonel Donellan of the 48th when, to use his own words, "I observed some men on the hill-top fire a few shots amongst us. Not having an idea that the enemy was so near, I said at the



General the Viscount Hill, G.C.B., Commander of the Forces, formerly Lieut.-Colonel of the 90th.

moment, *I was sure it was the Old Buffs, as usual, making some blunder.* I desired Donellan to get into line, and I would ride up the hill and stop them firing. On reaching the hill-top I found the mistake I had made. I immediately turned to ride off when they fired and killed poor Fordyce and shot my mare through the body. She did not fall, but carried me to the 29th Regiment, which corps, by my orders, instantly charged the French and drove them from the hill."

For Talavera, Hill was promoted to the colonelcy of the 94th Regiment, and was nominated by Lord Wellington to the command of a detached corps covering Lisbon from an advance in the direction of Badajoz.

Feeling that in Hill's hands the capital was secure from the eastward Wellington moved to the north. The summer passed without any further active operations, but, on the 27th of September, Hill was present at Busaco, and with his division was more or less hotly engaged during the whole retreat to Torres Vedras. Throughout the winter the British lay entrenched behind those famous lines, Hill being entrusted with the command of the right of the line. But illness had laid its heavy hand on Rowland Hill, and in December he was compelled to apply for a short leave to England; but in the month of May, to Wellington's satisfaction and the delight of the whole army, he was enabled once more to assume command of his old division. Towards the autumn Hill was detached to watch Gerard, and on the 28th of October succeeded in surprising that general at Arroyo de Molinos. Hill's success was complete; with but trifling loss he drove the French from their position. The attack was made at dawn, the 71st and 92nd dashing in on the enemy with their pipers playing "Heigh Johnny Cope, are you waking yet?" The pursuit was carried on with vigour, and, whilst our own loss was trifling, that of the enemy was correspondingly heavy: the Prince d'Aremburg, General Brun, three colonels, thirty officers of junior rank, and 1,500 non-commissioned officers and men being taken prisoners.

Lord Wellington, in forwarding Hill's despatches, recommended him most strongly for promotion.

"It would be particularly agreeable to me if some mark of the favour of H.R.H. the Prince Regent were conferred upon General Hill; his services have been always meritorious and very distinguished in this country, and he is beloved by the whole army."

Lord Wellington's recommendations were acceded to, and Hill was honoured with the Knighthood of the Bath, and the Governorship of Blakeness Castle, a sinecure bringing some small emoluments. His brother Noel Hill, who had taken home the despatches relating to the affair, was at the same time promoted to a brevet-majority.

On the 19th of May, Hill carried into execution another daring attack on the enemy, and, with the trifling loss of 15 officers and 162 men killed and wounded, seized the important bridge of Almaraz, driving the French out of the works they had constructed for its defence; 17 officers and 250 men fell into our hands on this occasion.

The winter was passed in the usual state of abstention from all military operations, but with the spring Hill's corps had its fair share of marching and countermarching. At Vittoria, on the 21st June 1813, Hill commanded the right wing of the army, Graham the left, Lord Wellington himself in the centre. Four Hills were present on this occasion, and on the 23rd of June all four dined together at Salviaterra, Sir Rowland in command of a corps, Richard the eldest in command of the Blues, Tom in a Portuguese regiment, and Clement as A.D.C. to his brother.

In the pursuit of the French to the Pyrenees, Hill was ever to the front, being present at Maya, Roncesvalles, Nivelle, the Nive, and every action of importance, including Orthes, Tarbes and Toulouse, until the news of Napoleon's abdication put an end to hostilities. Indeed the battle of the Nive was Hill's victory, and Hill's alone, as much as were Arroyo de Molinos and Almaraz; and as a compliment to the gallant commander, his brother, Major Clement Hill, was entrusted with the conveyance to England of the despatches announcing this victory.

After Toulouse, Wellington proceeded to England *viâ* Paris, and Hill was left in command of the army in the



COLONEL PALMER, C.B., 90TH L.I.

South of France, until suddenly called home to assume command of the troops proceeding to America. He was most averse to accepting this command, and was fortunate enough, as subsequent events proved, in being permitted to decline the honour.

For his services in the Peninsula, Hill, with Graham, Beresford and Cotton, was raised to the peerage, under the title of Lord Hill of Almaraz and of Hawkstone; he also received the freedom of the City of London with a sword of the value of two hundred guineas, and a similar sword was voted by Birmingham.

On the news of Napoleon's escape from Elba reaching England, Hill was directed to proceed to Holland, there

to act as military adviser to the King; and when Wellington arrived in Brussels to assume command of the army Hill was directed to command, as of old, the right wing of the force under the Great Duke.

The force under Hill consisted of:

Sir F. Adam's Brigade.—52nd Light Infantry.
71st Highland Light Infantry.
95th Rifles.

Col. Mitchell's Brigade.—23rd Welsh Fusiliers.
51st King's Own Light Infantry.
14th Foot.

1st Brigade King's German Legion.—1st, 2nd, 3rd, and 4th Regiments K.G.L.

At Waterloo, Hill surpassed himself; it was he, who, foreseeing the nature of the attack of the Imperial Guard, placed himself at the head of his Light Brigade and charged their left flank. In the melée that ensued Hill's horse was shot under him, and the brave general severely bruised in its fall. His two brothers, Sir Robert and Colonel Clement Hill, were both wounded in the great fight.

For his distinguished services at Waterloo, Hill, who had been most warmly spoken of in the Duke's despatch, was nominated to the Guelphic Order for his exertions in leading the Hanoverian troops in the battle of the 18th. During the period that our army occupied France Lord Hill was appointed to the command of the infantry portion of the force, the cavalry being under Lord Combermere.

With Waterloo, Hill's active career ceased, active so far as the operations of war were concerned. He was destined, however, to win still higher honour, and to give to his country the fruits of that military experience he had so hardly earned.

On the coronation of George IV., Lord Hill was selected to carry the standard of the Sovereign. In 1827 he was offered and refused the commander-in-chiefship in India in succession to Lord Combermere; and later on in the same year begged to be excused from accepting the post of Master-General of the Ordnance, then being vacated by Lord Anglesey. In the following year, on the Duke of Wellington being made Premier, Lord Hill was nominated to the important post of commander of the Forces.

The following order was issued on that occasion:—

"General Order.

"Horse Guards, February 15, 1828.

The King has been most graciously pleased to direct that General Lord Hill shall be placed on the staff of His Majesty's army, and that all matters respecting H.M.'s military service which have heretofore been transacted by the Commander-in-Chief, shall henceforth pass through the hands of General Lord Hill, G.C.B.

"The King's service having imposed upon Field Marshal the Duke of Wellington the necessity of resigning the office of Commander-in-Chief, the Field Marshal is happy to deliver over the command to a general officer who has so frequently promoted the honour of the army by his own conduct and example; who is so well known to the officers and troops, and so well acquainted with their services and merits."

One of Hill's first acts was the bestowal on his old colonel, Lord Lynedoch, of the governorship of Dumbarton Castle.

In June 1830, King George IV. appointed Lord Hill Governor of Plymouth, an appointment worth some



General Crealock, late 90th.

£1,100 a year, and in November of the same year William IV. conferred upon him the colonelcy of the Royal Horse Guards and the Gold Stick, vacant by the resignation of the Duke of Cumberland. Seven years later Hill performed his last act of reverence to that monarch by bearing the King's standard at the royal funeral. For five more years did Hill retain the command, and then, worn out with the incessant fatigue of office work, for he spared himself nothing, he sought the Queen's permission to retire; this was given in an autograph letter.

"Windsor Castle, August 12, 1842.

"The Queen has received Lord Hill's letter of the 9th inst., and is much concerned to learn that Lord Hill is so suffering in health that he thinks it his duty to resign the important office which he has so long and so honourably filled.

"The Queen can only reluctantly give her consent to this determination, as she regrets to lose Lord Hill's services at the head of her army. She cannot, how-

ever, omit this opportunity of expressing to Lord Hill her entire approbation of his conduct throughout the time he served her."

The Duke of Wellington, now free from the cares of political life, took up the reins of office which he had handed over to his brave comrade fourteen years before.

As a last token of regard, Her Majesty raised Lord Hill to the dignity of Viscount on his resignation of the command of the army. He did not long survive his new rank, for, on the 10th December 1842, he quietly passed away at his own place at Hawkstone.

Lord Hill's orders and medals.—Grand Cross of the Bath, Guelphic Order, Tower and Sword of Portugal, St. George of Russia, Maria Theresa of Austria, Military Order of William of the Netherlands, Turkish Order of the Crescent, gold medal for Egypt, gold cross and four clasps for the Peninsula, Waterloo medal.

GARNET JOSEPH, VISCOUNT WOLSELEY, K.P., G.C.B., G.C.M.G.

Lord Wolseley, the third officer of the 90th who has been raised to the peerage, comes of a good old fighting stock; his father served in the King's Own Borderers, his grandfather in the 8th Hussars, whilst an ancestor distinguished himself in command of the old Enniskillens in the days of William III. Lord Wolseley's early career was in the 80th, in which regiment he served with distinction in Burmah, but it was in the 90th that he first rose to fame, and it was in the 90th that he rose all his steps, and it is with that regiment his name will be inseparably connected.

Born in June 1833, Wolseley was nearly nineteen when he joined the 80th in Burmah. He joined at a critical time; our troops had been somewhat severely handled by the followers of Myat-toon, one of the most powerful leaders in the field against us, and all ranks were burning with anxiety to retrieve their tarnished laurels. Sir John Cheape, the Commander-in-Chief, placed himself at the head of a force destined to attack Myat-toon's stronghold, and amongst the troops told off for this force was a wing of the 80th under Major Holdich, Wolseley being one of the officers of the detachment.

On the 19th of March the Burmese position was reached, and to the 80th was assigned the honour of forming the storming party, the 18th Royal Irish and 4th Sikhs being in support. The first attempt was unsuccessful, and the General directed the 18th to be moved forward; they too received a check. A third attempt was made by the combined remnants of all the troops engaged, and, under the determined leadership of Major Holdich, the place was eventually carried. Considering the strength of the troops engaged, and the narrow front they had to work on, our casualties were very severe, two officers were killed, and twelve wounded, amongst the latter being Wolseley, who was very severely injured by a jingall-ball in his left thigh. Thanks to the temperate life he had led, to his youth, and sound constitution, Wolseley escaped with naught but a permanent limp to remind him of his *baptême de feu*; but at the time several of the doctors feared he would lose his leg, whilst others shook their heads gravely as to his chances of recovery. Wolseley was invalided home, and reached England at a time when all Europe was resounding with preparations for war. Keen soldier as he was, he at once applied for a transfer to a regiment detailed to form a portion of the Army of the East. In this he was disappointed, but within a



Captain Lysons V.C.

year of his being promoted to his lieutenancy (which he received in the 80th on 16th May 1853) he was transferred to the 90th Light Infantry, then serving in Dublin and under orders for India. The news of the Battle of Inkerman, and the terrible sufferings of the army in the Crimea, induced Lord Hardinge to change the destination of the 90th, and on the 4th December Wolseley disembarked at Balaclava with his new regiment. On the thirtieth of the same month he was selected for the post of Assistant Field Engineer, and did duty in this capacity until the capture of the Redan. On the 15th of this month Wolseley was promoted captain, without purchase, in the 90th; but the authorities, fancying he was too young for this exalted rank, cancelled the step. Wolseley, indignant at this

injustice, wrote a strong letter of remonstrance, pointing out not only that he was at the present moment in active service with his regiment, but that he had been dangerously wounded, and mentioned in despatches, during the Burmese war. The Horse Guards, no too prone to recognize themselves in the wrong, on this occasion had the grace to do so, and, on the 26th January 1854, Wolseley was once more gazetted to his company. His work throughout the siege was on a par with his subsequent high reputation. He was repeatedly mentioned in despatches, and was never a day absent from duty, except from sickness caused by wounds. His coolness under fire was remarkable, and his keen military eye already caused those who knew him well to look on him as a rising man. Casualties in the Crimea were heavy, but no corps suffered more than the Royal Engineers, and equally with them their acting comrades of the Line. In the course of the siege Wolseley was wounded on three separate occasions: on the 9th April slightly; on the 7th June, when accompanying the storming party at the Quarries, somewhat severely (on this day Wolseley was mentioned in Lord Raglan's despatch); and on the 30th August very severely indeed. His biographer, Mr. C. R. Low, says: "Wolseley's head and body presented a shocking appearance. His features were not distinguishable as those of a human being, while blood flowed from innumerable wounds caused by the stones with which he had been struck. Sharp fragments were embedded all over his face, and his left cheek had been almost completely cut away. The doctor fancied, after probing the wound, that his jawbone was shattered, but Wolseley made him pull the substance out of his mouth, when a large stone came away. The surgeon then lifted up and stitched the cheek. Both his eyes were completely closed, and the injury to one of them was so serious that the sight has been permanently lost. Not a square inch of his face but that was battered and cut about, whilst his body was wounded all over as if he had been peppered with small shot. He had received also a severe wound in the right leg." For his conduct on this occasion, Wolseley was recommended by Sir William Gordon for the Victoria Cross.

Wolseley was at once convoyed to St. George's Monastery, near Balaclava, where he was confined to his room for some weeks. He thus was deprived of the honour of participating in the storming of the Redan on the 8th of September, a day on which his regiment, the 90th, played a prominent part. On his recovery Wolseley was posted to the Quartermaster-General's Department, and continued to act as D.A.Q.M.G. until the 90th returned to England. Though strongly recommended by Sir Harry Jones, it was found impossible to promote Wolseley on account of his want of seniority, and when, in March 1857, the 90th was ordered out to China, Wolseley embarked on the *Transit*, in command of his company. The old *Transit* was one of the most unlucky ships in the navy. She was originally destined for the Russian Government, but on the outbreak of the Crimean War the Admiralty authorities purchased her from Messrs. Penn. On her trips to and from the Crimea she broke down more than once; and on her voyage with the 90th to China, after many vicissitudes she finally landed the Perthshire Greybreeks on a coral reef in the Straits of Sunda. Fortunately no lives were lost, and the Dutch authorities at Minto speedily communicated the news of the disaster to the English officials at Singapore. But a worse disaster had overtaken us. The Bengal Army was in mutiny, and the wrecked companies



COLONEL HACKETT, LATE 90TH.

of the 90th, rescued from their uncomfortable position, were speedily conveyed to Calcutta in the frigates *Pearl* and *Shannon*. The head-quarters of the 90th were already in Lucknow with Havelock: the three companies of the left wing were joined to detachments of other corps formed into a provisional battalion, under Major Roger Barnston of the 90th, with Apsley Cherry of the same corps as adjutant, and accompanied Sir Colin Campbell in his relief of Lucknow. Here Wolseley once more proved his mettle: and when our troops met with a temporary check at the 32nd Mess House, Sir Colin personally directed Wolseley to storm it with his own and Captain Irby's companies. Wolseley's subalterns most certainly gathered from the tenor of Sir Colin's observations that a Victoria Cross would be his guerdon should he succeed. The Mess House was carried. Amongst the volunteers who accompanied Wolseley in

this perilous venture was one Lieutenant Fred. S. Roberts, of the Bengal Artillery, a young officer on Sir Colin's staff. Ordering Irby to take the Observatory which was held by the enemy, who were keeping up a heavy fire on our troops from its crenellated walls, Wolseley pushed on to the Motee Mahul, and, having cleared that of the enemy, forced his way into the residency, there effecting a junction with the head-quarters of the 90th, under Colonel Purnell. Throughout the winter of 1857–58 Wolseley was shut in the Alumbagh, but in March he was present at the final capture of Lucknow, and in April was appointed D.A.Q.M.G. to Sir Hope Grant's division, in succession to Lieutenant F. S. Roberts, invalided. For his services at the relief of Lucknow, Wolseley received his well-earned brevet majority (dated 24th March 1858), when he was yet only 24 years of age. Until the Mutiny was finally crushed, and the various bands entirely broken up, Sir Hope Grant's force had little rest. Hot weather and cold weather were alike to the veteran Indian soldier, and it was not until the commencement of June 1859 that Wolseley was permitted to take up a permanent appointment in cantonments; he now had reached the rank of Lieutenant-Colonel, his brevet being granted for services at the close of the mutiny—it was dated 26th April 1859. Wolseley's rest was not of long duration. In October 1859, Sir Hope Grant was nominated to the command of the China Expeditionary Force, and he at once offered a post on his staff to his young comrade; it was eagerly accepted. During this campaign Wolseley was present at the reconnaissance on the 3rd August, under the French General Collineau, at the storming of the Taku Forts and the occupation of Pekin. His energy and ability were everywhere conspicuous. On the close of the campaign he was given an unattached majority, and shortly afterwards, on a vacancy occurring in his old regiment, brought into it as substantive major. In May 1861, Wolseley landed in England on eighteen months' leave; but ere long he was once more roused by the tocsin of war, and hurried off to America in consequence of the Trent affair. Fortunately the firmness of our own and the good judgment of the American statesmen steered the two countries safely through the crisis; but Wolseley was retained in Canada as an A.Q.M.G. During his period of service in that country, Wolseley, ever eager to improve his military knowledge, succeeded in taking a run down to Virginia and spending a short time with the Southern Army. Later on, during the Fenian disturbance of 1866, he was in command of a brigade consisting of a battery of artillery, the 60th Foot, and a couple of battalions of Canadian Militia; this force was subsequently amplified into a camp of observation, and strengthened by two troops of volunteer cavalry and a third militia battalion. Although not called upon to act offensively against the Fenians, Wolseley had a very anxious and trying time during these Fenian scares, and, as a recognition of his services, was appointed to succeed Colonel Lysons as Deputy Quartermaster-General in Canada in 1867.

Three years later he was selected to command the Red River Expedition, and though here, again, there was no actual fighting, Wolseley showed himself possessed of a remarkable talent for organization, and impressed all the officers and men who served under him with the same confidence that his comrades of the 90th had ever felt in the brightness of his future. For the Red River Expedition, Wolseley was nominated a Companion of the Bath and a Knight Commander of St. Michael and St. George.



MAJOR LOMAX, LATE ADJUTANT 90TH L.I.

In commenting on the expedition General the Hon. J. Lindsay, Commander of the Forces in Canada, wrote:—

"The mainspring of the whole movement was the commander, Colonel Wolseley, who has shown throughout great professional ability. He has the faculty of organization and resource in difficulty. He has served in many campaigns with distinction, and in this expedition he has shown great aptitude for command. His advance upon Fort Garry itself was conducted with skill and prudence, and his proceedings there, in abstaining from all interference with civil affairs himself, seems to me to have been eminently judicious. I hardly think it possible to over-rate the advantage Her Majesty's Government in Canada have derived from the employment upon this delicate as well as arduous service of an

officer of Colonel Wolseley's attainments, character, and discretion. I have esteemed myself fortunate in having such an instrument in my hand to carry out your orders with respect to the Red River Expedition. I therefore confidently recommend Colonel Wolseley to the gracious favour of Her Majesty."

From Canada, Wolseley was transferred as A.A.G. to the Horse Guards; during the manœuvres of 1871 and 1872 he acted on the staff of Sir Charles Staveley and Sir John Michel, both of whom had served in the Crimea and China with their subordinate.

In September 1873 Wolseley, with the local rank of Major-General, was directed to proceed to Cape Coast Castle, and there put an end to the disturbance caused by the Ashantees. The story of the Ashantee war has been so ably and so concisely told by Captains Huyshe and Brackenbury, that I may pass it over, merely remarking that after a short sharp campaign, in which Wolseley was himself slightly wounded, Coomassie was reached and burnt, the Ashantees thoroughly defeated, and Wolseley, for his services, promoted to the rank of Major-General for distinguished service in the field, and raised to the dignity of Knight Grand Cross of St. Michael and St. George, as well as to the Knighthood of the Bath.

The representatives of the 90th in this campaign were Sir Garnet Wolseley Lieut.-Colonel Evelyn Wood, and Lieutenant Eyre; Eyre was killed, and Wood and Wolseley wounded, and the rewards received by the regiment were proportionally high: in addition to Wolseley's promotion and star, Wood received the Companionship of the Bath.

On Sir Garnet's return to England he was made Inspector-General of Auxiliary Forces, but early in the following year was despatched on a special mission to assume chief civil and military command in Natal. In the short space of six months Wolseley had accomplished his mission, and, handing over the colony to Sir Henry Bulwer, returned once more to England. And now a fresh field was opened out to him. The military element at the India Office was remarkably weak, and Wolseley was selected by Lord Salisbury to infuse fresh life, fresh vigour, and fresh ideas into the minds of the elderly gentlemen who sat at the Council Table. This appointment he held until he was called upon to undertake the government of our new dependency, Cyprus, in the spring of 1878. His stay in Cyprus was short, but the work he did was lasting. The disaster of Isandhlana came upon the country like a shock, and loud were the demands that Wolseley should be sent out to retrieve the character of the British arms. On the 29th May, Sir Garnet left London for South Africa, but, before he landed, Lord Chelmsford had crushed the Zulu power at Ulundi, and Cetywayo, the Zulu King, was a fugitive in the bush. Wolseley's arrival, however, was none the less welcome. He at once organized a systematic search for the fugitive King, who was captured by Marter of the King's Dragoon Guards; he then led a very successful expedition against a noted rebel leader, Sekokuni, and, after pacifying the country, once more returned to the Horse Guards as Quartermaster-General of the Army.

Lord Wolseley's recent services are too well known to require more than the briefest comment. In 1882 he commanded the marvellously successful campaign against Arabi Pasha, terminating in the brilliant engagement of Tel-el-Kebir, and the splendid march of the Cavalry Brigade on Cairo. For these services he was raised to the Peerage and promoted a full General. In 1884 he was once more selected to command the relief



Major Lave, late Adjutant 90th L.I.

expedition organized to save Gordon, and, though no human aid could have saved that Hero from the treacherous fate that had awaited him for months, Wolseley did all that man could do to effect this purpose. On his return to England he was raised to the dignity of a Viscount and decorated with the Ribbon of St. Patrick.

There are many who decry Lord Wolseley's services, and sneeringly ask, "What has Wolseley ever done?" To this I would reply, Ask his comrades in the 80th what he did in Burmah: search the records of the Royal Engineers for his services in the Crimea; talk to old 90th men, men like Irby, Carter, and Haig, who were with him in the Transit, or to Guise, V.C., Clerk Battray, Wade, and others, who were with him at

Lucknow; ask Sir Gerald Graham, who served by his side in the Crimea and in China; ask those who were under him in the Red River, in Ashantee, in Zululand and Egypt; and they will answer that throughout his career he has shown himself a keen soldier, ever ready to face danger and to help a comrade. It is true he has had many opportunities, but he has never let one escape him? Can his detractors say the same? His Red River expedition is derided; Ashanti, I am told, was much exaggerated; Chelmsford had settled the Zulus before Wolseley arrived; Arabi's men never fought at all; and, as for the Nile Expedition, Wolseley ought to have started from Suakin and marched to Berber. I speak from what I know. Five and twenty years ago the 90th were proud enough of their young hero, and they—more especially his two subalterns, Carter and Haig—prophesied great things of him. These things have now been fulfilled. I do not deny Wolseley's luck, but I say he has shown himself worthy of fortune's favours His strategy in Egypt was sound; his selection of the Nile in preference to the Suakin-Berber route was dictated by that sound common sense for which Lord Wolseley is remarkable. I maintain that no one single man of all the 10,000 soldiers who were at Suakin in 1885 ventured to assert that there was a shadow of a possibility of a force moving from Suakin to Berber in the face of an enemy. As Wolseley himself said to the writer of these columns, "There is but one way to get to Khartoum, and that is by the Nile." Had he tried to move his men by the waterless desert which intervenes between the Red Sea and the Nile, we should have had to deplore the loss of thousands instead of hundreds, and those who believe in Wolseley—and they are many—might well have had their faith in his star shaken.

Let me summarise his services, and then ask what officer has done what Lord Wolseley has?

1852. Burmah.—Mentioned in Despatches; dangerously wounded; medal and clasps.

1854–55. Crimea. — Repeatedly mentioned in Despatches; three times wounded; medal and clasp; 5th Class of the Medjidieh; Knight of the Legion of Honour and Turkish medal.

1857–59. Indian Mutiny.—Repeatedly mentioned in Despatches; brevets of Major and Lieut.-Colonel; medal and two clasps.

1860. China.—Repeatedly mentioned in Despatches; unattached majority; medal and two clasps.

1866. Canada. — Commanded a brigade watching Fenians.

1870. Red River Expedition.—Thanks of Canadian Government; C.B. and K.C.M.G.

1874. Ashanti. — Thanks of Parliament; Major-Generalcy for Distinguished Service in the Field; G.C.M.G., K.C.B.; medal and clasp; wounded.

1879. South Africa.—Thanks of Parliament; medal and clasp; G.C.B.

1882–85. Egypt.—Twice thanked by Parliament; promoted General for Distinguished Service; medal and three clasps; raised successively to the dignities of Baron and Viscount; Knight of St. Patrick; Grand Cross of the Osmanieh and Egyptian bronze star.

Lord Wolseley wears seven English war-medals, gained in seven hard campaigns, the Ribbon of St. Patrick, the Bath, St. Michael and St. George, the Legion of Honour, the Osmanieh and the Medjidieh, as well as the Turkish and Egyptian war-medals; and yet the question is asked, What has Wolseley done? It is



LIEUT.-COLONEL RIDOUT, LATE 90TH L.I

true he has never yet commanded in any great affair, because England, fortunately, has never been engaged in a European war since Wolseley rose to eminence; but if the war-clouds which now lower so menacingly around involved us in the storm which sooner or later must most assuredly burst, then, I fancy, Lord Wolseley will prove to his detractors that the honours he has already gained are but the precursors of others which shall raise him to a pinnacle little inferior to those gained by the Great Duke at the commencement of this century.

Amongst the lesser heroes of the 90th are some few who yet may rise to the highest honours; one whose name is already known as a household word amongst us; some who, having won the most valued reward a sove-

reign can bestow, have hung up their good swords and retired into private life. Some still serve on, and their record of service shows a brilliant past; may we not hope for them a still more brilliant future? More, alas! have gone over to that majority whose names, forgotten by the masses of our fellow countrymen, are engraven for ever on the rolls of England's heroes.

The biography of Sir Evelyn Wood appeared so recently in these pages that I can pass over his eminent career in a few lines. As a midshipman of the Royal Navy he was ever by Peel's side in the gallant struggle in the Crimea. On the 18th of June he was desperately wounded, and had it not been for his extreme youth would have been decorated then with the V.C. From the Crimea to the Mutiny, from the navy to a commission in the 17th Lancers, was Wood's next step, and when in command of a squadron of the Central India Horse the coveted V.C. was bestowed upon him, and later on, when qualified by service, a brevet-majority. Passing through the Staff College with credit, Evelyn Wood held many staff appointments, until in October 1871 he was brought into the 90th. As a major of that regiment he served amongst the special service officers in Ashantee; there he was wounded and mentioned in despatches, receiving as a reward his full colonelcy and C.B. We next find him commanding the 90th in the Gaika war of 1878, and then leading a column as brigadier-general throughout the Zulu campaign. It was Wood's gallant stand at Kambula with those two fine Light Infantry regiments, the 13th and 90th, that shed the first glimmer of light over the dark page of that unhappy war; and when on its termination Wood (though only a junior Lieut.-Col. of a regiment) was given the K.C.B., not a word but praise was heard in defence of his rapid rise. In the still more dismal surroundings of the Boer campaign Wood once more shone out, and was now promoted Major-General for distinguished service, and granted the G.C.M.G. In Egypt, Wood again followed in the wake of his old leader, Wolseley: first in command of a brigade, then in chief command of the newly-organized Egyptian Army, and lastly in charge of the line of communications on the Nile. It was impossible to grant him higher honours for these services without causing the supersession of men his equals in merit and his seniors in the service. He was, however, mentioned by name in the vote of thanks given to the army in Egypt by Parliament, and nominated to the command of the Eastern Division at home.

For his services in the Crimea, Wood received the medal and two clasps, the 5th Class of the Medjidieh, the Legion of Honour, and the Turkish Medal; for the Mutiny, the medal and V.C.; for Ashantee, the medal and C.B.; for Zulu, the medal and K.C.B.; for the Boer affair, the G.C.M.G.; and for Egypt, the medal and clasp, the Bronze Star, and the 2nd Class of the Medjidieh. If we except Lord Wolseley, Wood is perhaps the most bemedalled officer in the army.

Amongst those officers and men of the 90th who figure in these pages as recipients of the Victoria Cross, I may name Major, now Lieutenant-General John Christopher Guise, who served with the 90th in the Crimea and Mutiny, and who was elected by the officers of his regiment to this high distinction. Brigadier-General R. M. Rogers, V.C., C.B, who, after serving in the 44th in the Crimea and China, gaining the Cross in that regiment, was promoted into the 90th, and commanded it throughout the Zulu War, earning in its ranks his colonelcy and C.B. Surgeon-General Sir Anthony Home, V.C., K.C.B., who with Assistant-Surgeon W. Bradshaw earned the Cross for devotion to the wounded in the relief of Lucknow. Col. W. Rennie, who gained his Cross as adjutant of the 90th in the Mutiny; Captain H. Lysons, another adjutant of the regiment, who, gallant son of a gallant father, won his Cross under the eyes of Sir Evelyn Wood in Zululand. Sergeants Moynahan and Alexander, who were amongst the first recipients of the Cross for valour in the Crimea. Sergeant Hill, who was nominated to the distinction by the officers of the regiment for saving the life of Captain L. H. Irby at the storming of the Secundrabagh in Lucknow. Private Graham, who, slim lad though he was, dashed out from the walls of the Residency and carried to a place of shelter a wounded comrade, and who was given the Victoria Cross on the unanimous vote of the men



COLONEL WARD, LATE ADJUTANT 90TH L.I., NOW COMMANDS 2ND BATTALION SCOTTISH RIFLES.

of the 90th. Private Fowler, who, with young Lysons, nobly avenged Ronald Campbell's death on the Zlobane Mountain, and, by driving some Zulus out of their caves, notably contributed to the safety of Sir Evelyn Wood on that unfortunate occasion.

Others there are who were worthy of wearing the Cross, but who were debarred that high honour. Bugler Flaxman, whose career in the Crimea and in the Mutiny was one long-continued act of gallantry; Privates Stralley and Kelly, and Sergeant-Major Gibbon, who had to rest satisfied with the medal for distinguished conduct in the field, though originally recommended for the Cross.

List of Officers and Men of the 90th rewarded for Service in the Field.

Victoria Cross—Major J. C. Guise, Lieutenant W. Rennie, Lieutenant H. Lysons, Surgeon A. D. Home, Assistant-Surgeon W. Bradshaw, Sergeant W. Moynahan, Sergeant Alexander, Sergeant Hill, Private W. Graham, Private Fowler.

Peerage—Thomas Graham, Baron Lynedoch, Rowland Viscount Hill, Garnet Joseph Viscount Wolseley.

Knight of St. Patrick—Lord Wolseley.

G.C.B.—Lords Lynedoch, Hill, and Wolseley.

G.C.H.—Lord Hill.

G.C.M.G.—Lord Wolseley and Sir Evelyn Wood.

K.C.B.—Sir Marcus Slade, Sir T. Graham, Sir R. Hill, Sir F. Stovin, Sir. G. Wolseley, Sir Evelyn Wood, Sir Anthony Home, V.C.

C.B.—R. Campbell, W. Purnell, T. Smith, G. J. Wolseley, H. H. Crealock, J. C. Guise, J. Clerk Rattray, Evelyn Wood, H. W. Palmer, and R. M. Rogers.

C.M.G.—H. H. Crealock.

Major-General for Dintinguished Service in the Field—Thomas Graham, Rowland Hill, Garnet J. Wolseley, and Evelyn Wood.

Brevet-Colonel—R. P. Campbell, W. Purnell, Evelyn Wood, R. M. Rogers.

Brevet Lieutenant-Colonel—G. Burrell, T. Wright, A. Hope, E. Currie, R. Grove, T. Smith, H. H. Crealock, J. C. Guise, W. P. Tinling, G. J. Wolseley, A. Cherry, R. H. Hacket, W. S. Hamilton.

Brevet Major—B. Preedy, E. Currie, W. H. Wilby, R. Barnston, J. Perrin, H. H. Crealock, G. J. Wolseley, J. H. Wade, R. H. Magenis, S. J. Stevens, J. H. Laye.



COLONEL ROGERS, V.C., THE LAST COLONEL OF THE 90TH.

The 90th is now merged in the Scottish Rifles, but the battles which were emblazoned on the colours of the parent regiment are now engraved on the accoutrements of the new corps, and the names of those heroes whose deeds I have so unworthily described are unperishably engraved on our military annals. They should serve as a beacon to guide the younger generations of our soldiers in the steps their fathers trod. What higher praise can the Scottish Rifles desire than that they may be called worthy descendants of the Perthshire Greybreeks!

THE OXFORD MILITARY COLLEGE, COWLEY, OXON.

WHETHER the somewhat feverish activity displayed of late years with regard to the education of our officers affords matter for rejoicing or lamentation, is a question on which public opinion is, at present, widely divided, and likely to remain so for many a day to come. The same may be said of Mr. Forster's Act. But for all that, we are brought face to face with accomplished facts, and Hodge enjoys to-day educational advantages which fifty years ago, or even more recently, were denied to the Squire's sons. This move from below has been of a compulsory nature, even and steady has been its progress, and far-reaching its consequences.

It needed not the gift of prophecy to foretell that this movement from below would call—imperatively—for a corresponding move from above; that the old school curriculum, confined practically to the classical languages, would be found insufficient. But for some time, and down to our days, the *laissez-faire* policy prevailed. Vested interests, prejudice, and apathy combined in frustrating every attempt at scholastic reforms.

The abolition of purchase in the army, and its concomitant measure, competitive examinations, have at last forced many an unwilling hand to revise the old curriculum. But the response has only been partial and tardy. The demand created by the competitive system has been mainly supplied heretofore from two sources, viz. the private tutor, or crammer—as he is more frequently called—and by the modern public schools. Foremost amongst these latter has been the Oxford Military College.

The system pursued by this institution differs entirely from that of any other similar institution or public school. Its founders probably foresaw that under the altered conditions created by the abolition of purchase, competition for commissions in the army would increase, and with it the severity of the examinations, —in fact, an intellectual race (however little in harmony with the true aims of education), with all its concomitant evils, must ensue. How to meet the former, and how to mitigate the latter, are problems which the authorities of the Oxford Military College have sought to solve, with what success we must leave our readers to judge for themselves.

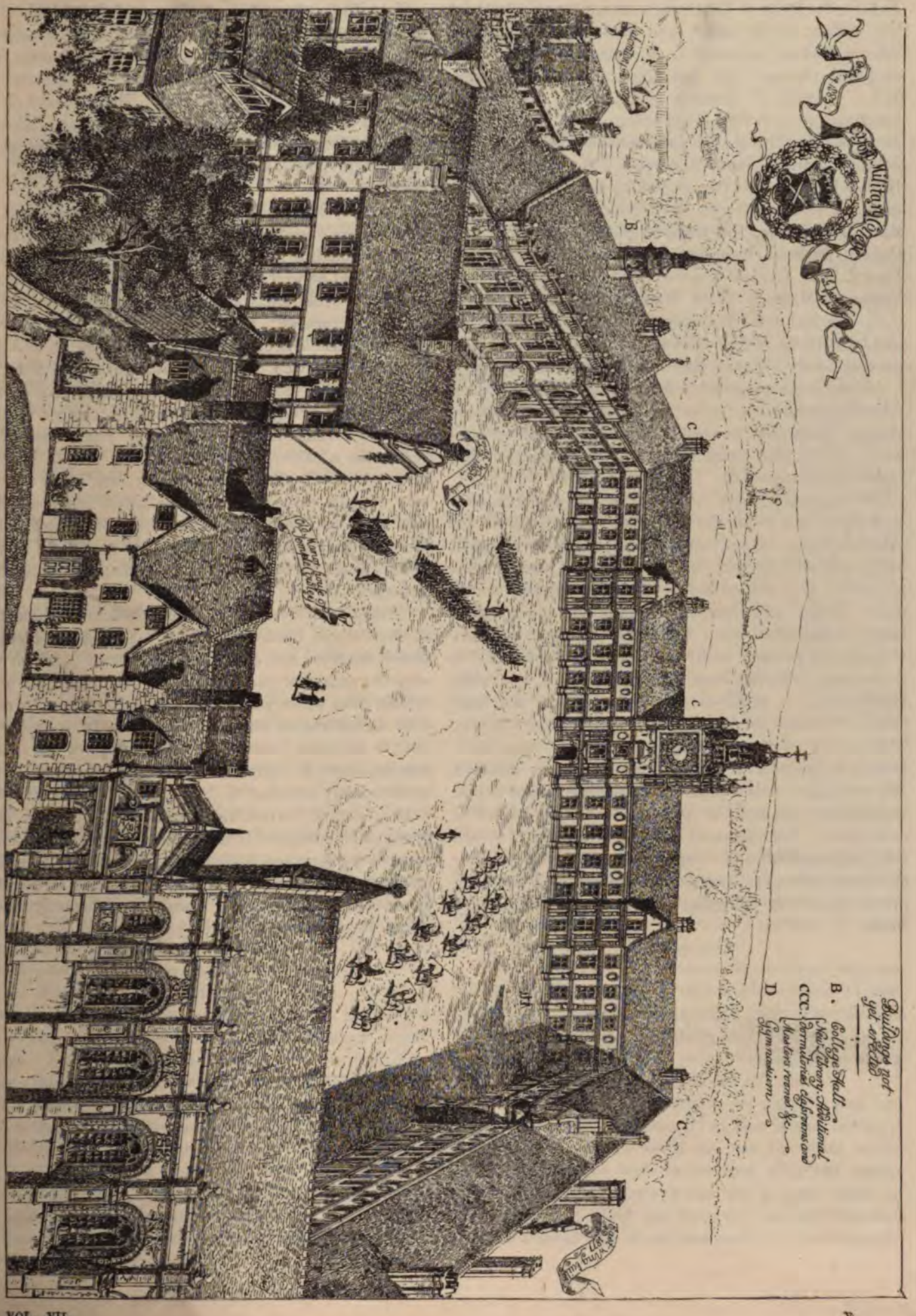
Mens sana in corpore sano has been their motto. They decided upon a blending of physical training and mental culture. Intellectual development alone cannot produce the officer required for a British army; a single short campaign may prove fatal to a man whose physique has been neglected. But the days of brute force, when dash and daring went for much in carrying a man to the front, are likewise gone by. It is a trite statement, a mere truism, to say science has revolutionized the art of war more than any other profession, and for that reason demands from its votaries intellectual culture of an high order. For good or evil, the men whom our officers are now called upon to lead are no longer amenable to blind, unreasoning obedience; its place has, to a large extent, been taken by *moral sway*, acquired by intellectual superiority. These factors are but too frequently lost to view by the opponents of higher culture for officers.

To respect England's cherished traditions for classical learning by providing every facility for those studies, but to cease forcing them upon boys irrespective of inclination and future utility; to ascertain the bent of individual intellects, and nourish them with the food they are capable of assimilating, and thus produce an healthy intellect instead of mental deformity and failure in life; to direct every boy's studies from the beginning, with a view to the profession he is destined for, and for this purpose place Mathematics, Science generally, and Modern Languages on a par with Latin and Greek: such briefly is the literary curriculum of this Institution.

The technical curriculum, and physical training, embraces military riding, sword and lance exercise, carbine drill, infantry drill, gymnastics, and swimming; also instruction in boxing and fencing for those who desire it. The total cost of this comprehensive course of instruction, literary and technical, and inclusive of Board and Residence, does not exceed one hundred guineas per annum. Seven hours per diem are devoted to the literary curriculum, and one hour to physical training, making a minimum of eight hours' compulsory work per diem for all but the very young students. At a first glance this may appear a severe strain, but we are assured, on the best authority, that evil effects from overwork have never been known to have occurred.

The institution opened in 1876 under the direction of a committee of management, amongst whom were:

SKETCH OF EXISTING BUILDINGS AND PROPOSED EXTENSIONS.



H.R.H. the Duke of Cambridge, who, ever solicitous for the welfare of the army, and ready to promote any scheme tending to benefit it, became the patron of the proposed College; the late General Eardley-Wilmot, R.A.; Colonel F. Duncan, C.B., M.P. (the present chairman); Colonel Sir Hugh Owen, A.D.C.; the present Dean of Winchester; General Salisbury, C.B., Colonel John Graham, Colonel Moncrieff, C B, Mr. Marshall-Hall, J.P., and Mr. Henry Naidley (the present secretary). These gentlemen were later on joined by the Rev. J. J. Jayne, the Right Rev. the Lord Bishop of Oxford, Surgeon-General Sir Joseph Fayrer, General Lowry, C.B., Lord Howe Browne, Field-Marshal Lord Napier of Magdala, Lord Wantage, General Cameron, C.B., General Lord Wolseley, Colonel Sir John Stokes; and latterly Sir Walter Buller and most of the agents-general for the Colonies have lately joined the Council.

Although the proposed college attracted many theoretical sympathisers, active supporters, it soon became evident, could only be won over gradually and by hard work. Many and formidable were the difficulties that had to be surmounted.

The managing body had to rely for the successful working of this novel and complicated scheme upon instructors whose educational experience had been gained under the old system, and as a natural consequence many of the old evils -- evils forming the *raison d'être* of the new institution—were on the point of being perpetuated here; incessant vigilance and tact alone could prevent such a calamity. The infancy of the young institution was in consequence a somewhat stirring one, it required many changes in the staff before the aims of the promoters could be realised. The disbelief of the public in the ability of large institutions to prepare for special examinations, a disbelief still existing in many quarters, and dying a hard death, was another and not the least difficulty that had to be combatted. But the most formidable difficulty, we are told, emanates from the pupils themselves, the majority of whom prefer the easy-going, unrestrained life at a private tutor's to collegiate discipline and compulsory work.

Notwithstanding these various and formidable difficulties, upwards of 200, or 63 per cent. of the candidates sent up from the College have issued triumphantly from the Burlington House ordeal. Last year twenty-nine out of thirty-two were successful. The standard of the physical training may best be judged by the following remarks from General Lord Wolseley, delivered on the occasion of inspecting the students in June last year:—

"Mental culture, when carried on to too great an extent, very often has a deteriorating effect upon young men, although it is very necessary, as I have said, that they should be well read in the history of their country and many other great subjects, which are so important for future success. How often have we seen a young stripling leave school, at least I have seen it, and join the army, one who ought to have worn spectacles, for he could barely see, with a large head and a very narrow chest. That is not the sort of young man we want in the army; that is not the sort of young man that will make a career for himself in the world; he may do very well if placed in a library, but he is not the sort of man that is wanted for active service. Any one who has seen active service would not choose him to lead a storming party, or to follow him if called upon to embark in any difficult or dangerous undertaking.

"From what I know of the curriculum of education in this College, I am aware that your mental education is well attended to; and from the manner in which you went through your various military exercises, I am quite certain that when you leave this college, you leave it with an enormous number of chances in your favour over those young men who leave many of the great schools where the physical training of the youth is not so sufficiently attended to."

The literary curriculum is under the direction of a young and energetic Head Master, Mr. J. P. Kirkman, assisted by fourteen assistant masters. The technical instruction and physical training generally is directed by Lieut.-Colonel A. S. Macartney, formerly cadet officer, Royal Military Academy, Woolwich.

THE INVASION OF GUERNSEY.

By GENERAL "X."

"IT was a very lovely summer's day—yes, it was fifty years ago since the military pic-nic at the Gouffre took place. I went there with your great-grandmother and Sunshine in a chair, a little Guernsey carriage drawn by one horse. The scenery there had a rugged wildness of its own. We were a happy and merry party, and scrambled over dangerous spots, and heard the band playing close to the shore, under big boulders that hung over us in a dangerous-looking manner. The sea just rippled at our feet; the ocean was very calm that day under the influence of the soft south breeze. A gentle haze hung over the water about three miles away; light and shadows fell on its surface, delineating rocky shoals and streaks of sandbanks.

"The cliff road down to the bay was at intervals a narrow rugged path about six feet wide, cut in the side of a precipitous cliff, that in weird fashion overhung the ocean. The heather grew in scattered bunches, suggesting the idea that grouse might spring from them. Pale painted boats danced merrily in the undulating waters that had cut into the indented land, gradually wearing it away.

"Well, the afternoon passed away happily; the roseate hues that hung about the sky gradually changed their varied lights, until the quiet calm of eventide arrived with its deepening mantle, covering alike light and shadows till one uniform tint had been formed. Very fresh and lovely the ocean looked; a braided network had been gradually stealing over it. Tiny white horses that had specked its surface during the day were now very few and far between. The spot was neither dreary nor lonely, and the evening air was pleasant. The old rugged cliffs stood out very sharply against the declining light, and the sound of soft murmuring from the ocean was pleasant to listen to, and very soothing.

"At that time we lived in a pretty house. It was a sweet little spot, and your great-grandmother had decked the rooms with old china, pictures, and other pretty things. I had a nice garden to take care of; and Sunshine used to go to the Ladies' College, which was then in the zenith of its popularity, and, like many other good things in Guernsey, supported by local enterprise.

"There had been a great deal of trouble in Ireland, and a large number of troops had been stationed over there to keep order. The British Parliament had passed Bill after Bill to endeavour to satisfy the Irish people; but there were always among them certain persons who found it paid better to talk than to work honestly, and these persons did a great deal of mischief, and were always trying to make people discontented, and in consequence people who had a great deal of money would not put anything into Irish works, and a great many ladies and gentlemen who had property in Ireland did not like to run the risk of being shot at, and lived in England and Scotland and Guernsey, where they were safe, and where they were not allowed to be harmed

"There had also been a great fuss about making a Channel Tunnel, and a book written by someone who called himself 'Grip' had made a great sensation, as it described a British tradesman in London compelled in his own house to wait upon five foreign soldiers at dinner, who had turned his house upside down, and thrown his chimney ornaments out of the window, and had told him in broken English to be 'Kvick and make ze dinner, or he make von tumble out of ze window.' He was not to be pitied either; he was one of a lot of silly people who were always meddling with things they did not understand. He had objected to a proper increase of the Army, and considered that volunteers were enough to protect the country, and had taken a prominent part in a meeting against a proposed increase to the Navy, and, of course, was almost in despair, when he saw how silly he had been. There had also been a great deal of ill-feeling against England on the Continent, and a number of our men-of-war were away guarding Alexandria, and looking after the Suez Canal, and steaming up and down the Mediterranean Sea, and over the Pacific Ocean. You know the pretty little island of Herm do you not?"

"Oh, yes, Grandpapa," said the child, a lovely wee fair-haired girl, looking at him with fond affection, while she coquettishly crushed the toe of one tiny shoe with the heel of the other; "I found a number of pretty shells on the beach there last week."

"Well," said he, "Herm is an island where game and rabbits used to live, and certain monks rented it; then these monks gave it over to another order of monks, who had plenty of money, and they took possession of the island, and tried to prevent people making their excursions to, and going about the island as usual.

"Well, the States of Guernsey did not like this, and there was a great fuss about it; at last it was arranged that anyone that liked could go over the shell beach. There appears to be little doubt that, after the monks secured it, a secret telegraph was laid to some place on the French coast which had been very strongly fortified, and that a great deal of use was made of this telegraph.

"We had finished scrambling about the rocks, and the band had come back, and had formed in a ring on the grass outside the little hotel. We then sat down to an improvised dinner on a rough table that had been knocked up for the occasion, when the clattering of a horse galloping was heard, and in two or three minutes the garrison quartermaster had jumped off his beautiful grey horse, which, covered with foam, stood panting in the road. Of course all talking at once ceased, and he approached the table, and respectfully saluted the general officer who commanded in Guernsey. The latter said nothing, but rose from his seat and walked about fifty yards from the table in the direction of the hotel.

"'What is it?' said the General, when they were out of hearing of the merry party.

"'Pirates, your Excellency,' he replied. 'A young gentleman who keeps a white boat in one of our bays here, and who has just returned from a fishery excursion, tells me that he saw four armed vessels that he believes to be the property of that cut-throat ruffian Arabi, who is believed to be the same man who gave so much trouble in the East years ago. They were anchored off the Casquets, waiting to catch a Guernsey pilot.'

"'Thank you,' said the General; 'return quietly, see the staff of the militia, tell them to be ready to turn out with arms and ammunition at a few minutes' notice, and send this telegram to Alderney, which will bring the troops over here without delay.'

"The Quartermaster proceeded on his mission, and the General returned to the picnic party, and (as the ball at Brussels before Waterloo) all went merry as a marriage bell; but the General and I soon drove back alone to Government House.

"'I am glad we are alone,' he said, 'because I wanted to speak to you by yourself, more especially as the question will probably resolve itself into a question of fortifications resisting armed war-vessels manned with Pirates.'.

"What did you say, Grandpapa?"

"'Well, General,' I said, 'my opinion is that the fewer people who are allowed to meddle in the question the better. My advice is, telegraph the facts briefly to the Home Office, War Office, and Jersey, and solicit assistance. You remember, I dare say, that at the battle of Dorking the fleet took a submarine cable with it, and laid it down as it advanced, telegraphing repeatedly, so the newspapers were supplied with the latest information. The historian hinted that use was made of this telegraph to send contradictory orders and take the command out of the Admiral's hands; and my idea is, that the sooner the cable here is cut, the better for the safety of the island. It was all very well in Nelson's days, when our fleet was really supreme over the ocean, to disregard a signal or order and put a telescope to a blind eye; but if you receive telegraphic orders to wait till a Cabinet Council has assembled, or some other diplomatic act takes place, we may all be destroyed during the next two days; and if the telegraph remains, some newspaper correspondent (as they are said to have done during the Egyptian Campaign) who has, perhaps, a natural talent for lying, will probably telegraph some mischievous message to England, and make very bad confusion.'

"'There is another thing, too, in which we may profit by the experience of the battle of Dorking, and, as far as practicable, each corps had better look after its own transport and provisions. We certainly have that new-fangled affair the Control, which, in the end, did the troops nearly as much harm as the enemy.'

"We had a great deal more talk, and you may imagine that I had little sleep that night. I knew well enough that there were plenty of soldiers, ammunition, provisions, water, and other things needful in Guernsey, to enable us to make a good defence, but I was not so sure about the organization; however, a crisis had now come, and everyone had to make the best of it.

"We, fortunately, had four regiments of Guernsey militia, including one of Artillery, and a great many people thought it was a good thing they were purely a local body, and a very patriotic one, too, for that matter.

"All the inhabitants between sixteen and sixty were bound to serve in the militia, and they certainly mustered very strongly at a few hours' notice.

"The Militia Artillery were distributed at Fort George, Castle Cornet, Forts Irwin, Clarence, and Charlotte, Richmond, Hommette, and Crevelt, so as to increase the force of the Royal Artillery, who unfortunately were very limited, the British Parliament having lately reduced them.

"The other regiments found camps the next day at Cambridge Park, Longcrest Common, and behind Fort George, extending in the direction of St. Martin's parish, and as they had plenty of ammunition, and were orderly and obedient to their superiors, and their commanding officers were men of much spirit and determination, and had seen active service also, we were somewhat inclined to take a cheerful view of matters. Anyhow, the time of suspense was not very long, for about noon the next day, the signal stations at Fort George and Castle Cornet signalled 'Enemy fleet'; and sure enough before long we saw four vessels advancing in line in a stately manner from the direction of the Casquets, and all flying the 'black flag.' It was, perhaps, as well they did; for though a great many of the civilians were naturally very frightened, it made the military very angry.

"You know that fine old round tower, called Brehon Tower, that you pass soon before reaching Guernsey harbour. Well, there were three or four splendid guns

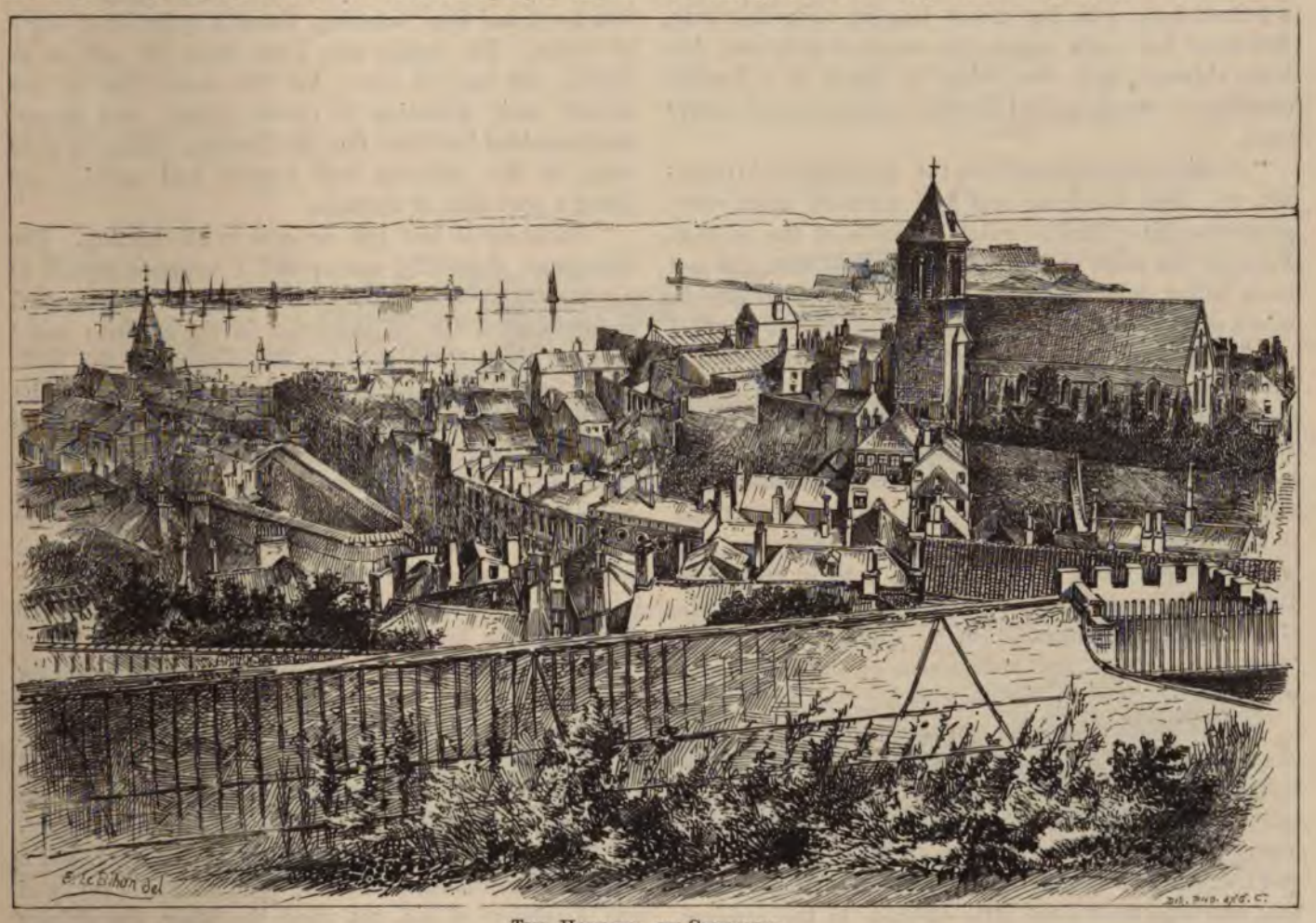
mounted there: they had been made by a celebrated man Sir W. Armstrong, and right useful they were too, as affairs turned out.

"We never knew exactly whether the pirates secured a pilot or not; I always thought they failed to get one, and came along as best they could. However, *on* the four vessels came, and though they had steam up, the wind being fair, they sailed along in the direction of Guernsey harbour. However, if they expected to get into it, they were greatly mistaken, for both soldiers and civilians had been at work all night, and now the entrance to the harbour had been blocked up by a mass of booms and heavy baulks of timber, so interlaced with chains that no ship could possibly get through them without blowing them up. People wondered what the mail steamer, due in the morning from Southampton, would do, but the agent had sent a message to her the night before, about half an hour before the cable had been cut, not to come over.

"I shall never forget, nor do I think anyone ever will, the commencement of the battle that morning. The first shot fired was from a big gun in Fort Crevelt. We saw the sulphurous-looking smoke hang round the gun after the discharge, and distinctly heard the whistle of the shot through the air, and a loud cheer rang along the lines of Fort George when it became apparent that this first shot had passed through the funnel of the hindermost vessel. The guns of Fort Crevelt kept on firing for some time; and though the ships did not fire back again, their decks were seen to be crowded with armed men, and some were wounded by splinters of shells that burst right over them.

"Suddenly we saw, to our great delight, another cloud of sulphurous-looking smoke from Brehon Tower, and the loud boom of the Armstrong guns fell upon our ears. We thought it was very charming music. We looked through our telescopes at the gunners as they were working away with a will, and right nobly they performed their dangerous duties throughout all that fatal day; at all events the mast of one of the front vessels was cut in two by one of the first shots.

"In another minute, however, the ships fired a broadside of guns at the tower, and frequently masonry flew all around. The tower, however, was a famous strong one; it had been built by the Royal Engineers many years before, and although it was hit very often during the day, that seemed to make no difference to the Royal Artillery in the tower, for those Armstrong guns kept



THE HARBOUR OF GUERNSEY.

banging away until it became dark. The pirates were evidently greatly bothered by the tower, for they, no doubt, clearly saw that unless they could manage to hit the guns they had no chance of stopping the firing, so they let one of their vessels drop behind the others, and it anchored within a mile of the tower, and then there was a regular battle between the ships and the tower.

"I think the three or four guns in that tower fired nearly eight hundred shot and shell this day, and a great many were fired at it from the ship. The tower being circular, the shot and shell could not destroy it, and about 7 o'clock that evening the Pirate ship, after a gallant fight, with her masts hanging over her side, several of her ports apparently smashed into one, her boats shivered, and everything on board in a terrible condition of wreckage and disorder, gradually and slowly sank.

"Ringing cheers arose from the population of Guernsey, who lined the shore, and had crowded upon every prominent bit of land to watch the issue of the contest. From all the noise that was made, anyone who did not know better, might have imagined that we had already won a glorious battle.

"The *Guernsey Star* brought out a special edition that evening, which was eagerly bought up by the crowds that thronged High Street, St Julian's Avenue, and the other principal thoroughfares. The tone of its leading article was jubilant, and lavishly praised the military, and declared 'the regular troops and militia in the island would carry us through any difficulty, and were as fine a body of men as the veteran troops the Duke of Wellington had at the battle of Waterloo.' The *Guernsey Gazette* declared in a simultaneous article 'that the courage and enthusiasm of the inhabitants would readily quell the foe.'

"These articles, and the great absence of fuss that characterized our military preparations in Guernsey helped us on a bit. We fortunately had no reserve to call up by proclamation, and no recruiting by heavy bounty, and no pressure to build ships all of a sudden, and there were a good lot of rifles in the militia-arsenals that had been built some little distance in the country. Several of the gentlemen who were called jurats went there; and although there was a great crowd, it was an orderly one, and in the course of a few hours about four thousand rifles and ammunition were served out. The jurats had great influence over the people, because if any man or woman did anything wrong they were tried before two or three of these gentlemen, who were like a sort of standing jury, and imprisonment with *Travaux forcée* was no joke, I assure you.

"The worst thing that happened that day was that when the contest between the Tower and the ship had continued for some hours, and the other three Pirate vessels had sailed past the town, and anchored not far from Fort George, certain puffs of smoke came from the pretty little island of Herm, and then we saw shells high in the air, and knew they had been fired from mortars which must have been secretly landed there.

"At first the enemy, or whoever manned that battery, tried to throw them into Fort George, but after firing for about an hour, and finding the shells fell short, and tumbled harmlessly into the sea, the fire of the battery was concentrated upon Castle Cornet and the town.

"One of the first shells fired into the town fell into the tennis lawn of one of the 'Stately Homes of Guernsey,' a pretty place called Roselle, and buried itself several feet deep, and then bursting, threw a quantity of earth all round. The family who lived there did not at all like it, you may be sure; but the enemy after a time turned their attention to Castle Cornet, and several shell tumbled into that fine old fortress, killing a good many of the Artillery, both regular and militia, and doing a good deal of damage.

"Darkness at last put an end to all fighting. The night was pleasantly warm, and I wrapped myself in my cloak, and lay down for a few hours in a hammock swung between two of the trees in the garden; and I slept till about 5 o'clock, when the singing of the birds awoke me. I went down to Cambridge Park, and found the militia on the alert, but very hungry, there having been some mistake about the supply of provisions. I looked about to see if I could find any commissariat, or, as they were called, control officers, but none were to be seen; but I saw two cart-loads of bread and groceries in one of the side streets, and military drivers in charge, and asked them to drive into the park and distribute the bread. However, they said they 'must wait for the Controller.' I broke off a bit of bread for myself, and walked back to Cambridge Park, and told the colonel of one of the regiments. He was an old soldier, said 'he would stand no nonsense,' and rode off, followed by a lot of hungry militiamen; a rush was made upon the carts, and a regular scramble took place.

"The Colonel got upon the box of one cart, and a very stout gentleman, who had been in the navy, and was a relative of his, got upon the other, the drivers were tumbled off their horses, and away we went in triumph. The men were very hungry, but order was kept and a proper distribution took place. While it was going on, an officer rode up in a great rage; he was the Controller, and used bad language, and told the Colonel 'he should report him, and that his men were like a disorderly mob.' The Colonel was very angry, and told the Controller he 'had better go away, or he might not be able to restrain the indignation of the men, who perhaps might hang him.'

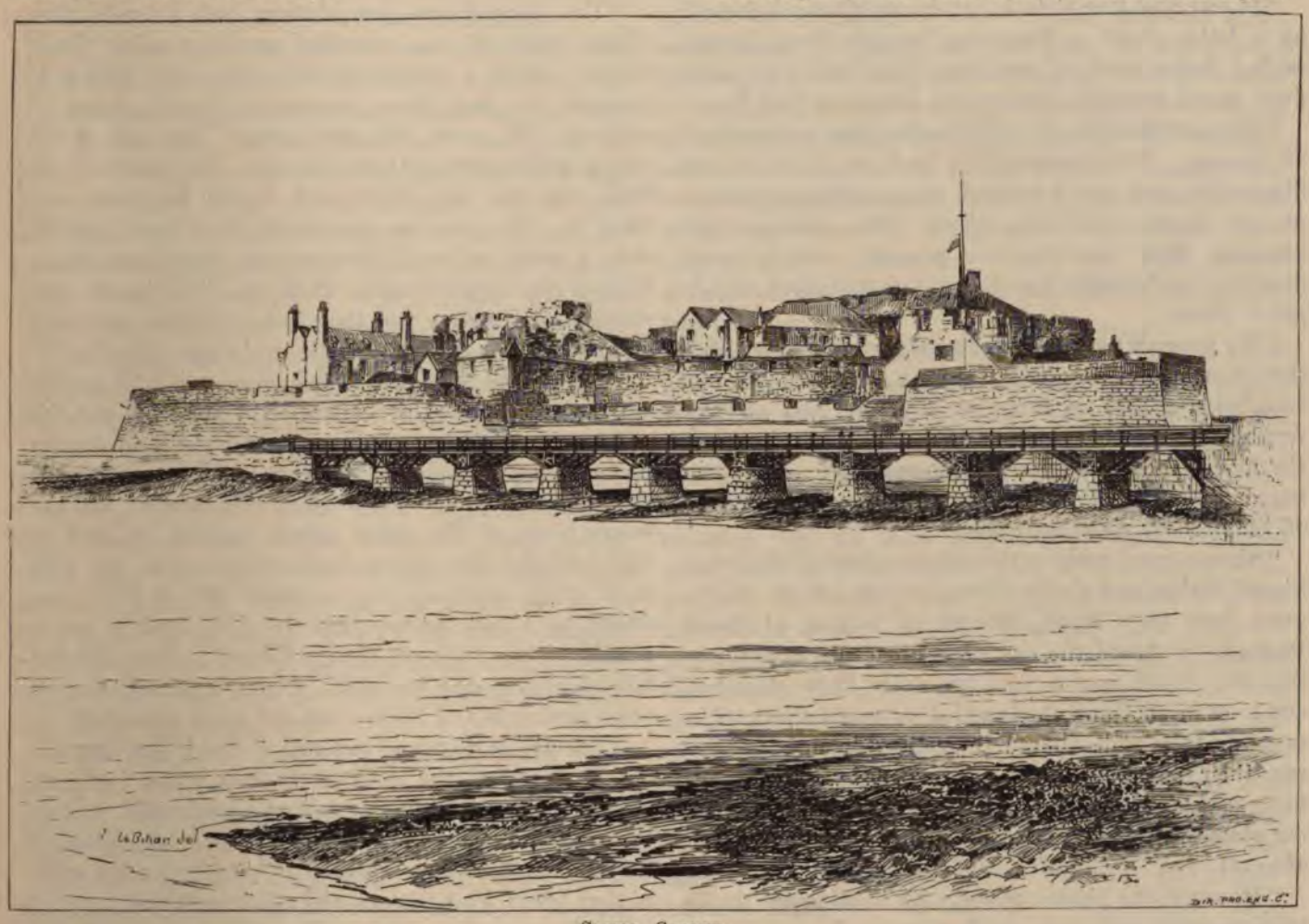
"The Controller then rode off, and we never saw him again. Some one afterwards said he did report the Colonel to the General; but he got no good out of it, for

the General said 'he was busy, and that the Controller had better keep out of the way of the Colonel.' The people living here were very kind to us, and sent us a number of cans of tea and coffee, and most of the men's wives now came and brought us some provisions and cooking-pots and kettles.

"The bugles sounded the 'fall in' about 8 o'clock, and they had just finished sounding when we heard the banging again of heavy guns. The three pirate vessels were now engaged with Castle Cornet, Fort George, Fort Irwin and Clarence Battery.

his clerks had joined the Militia, so they escaped being killed. The roof of St Julian's Hall—a place where we used to have jolly evening dancing parties and assemblies—was a good deal injured, and a part of the tower of the old Town Church was seriously damaged. Several fragments were blown through the windows of the old Guernsey Bank and the Commercial Bank. The clerks ran off as hard as they could, and no one blamed them. I believe one of them, with a red face and big nose, did not stop running till he reached the Rohais Road.

"The fragments of stone made sad havoc among the



CASTLE CORNET.

"We were holding our own pretty well, when a terrible misfortune took place. A heavy shell burst just as it fell, close to the door of the powder magazine at Castle Cornet; and the magazine containing, I do not know how many barrels of gunpowder, exploded. The destruction was fearful. Castle Cornet became a heap of ruins—the guns were all dismounted, all the officers and men in the Fort either killed or wounded, and fragments of the masonry were blown into the town. The office of the South-Western Railway and Steamboat Company, which faces Castle Cornet, was completely destroyed by a huge piece of about half a ton that fell into the building. Fortunately the Superintendent and bank-notes and sovereigns and other coins lying about. However, both the Managers stuck to their posts, and eventually the money was secured in the Bank safes, and the Managers went away, taking the keys.

"Things looked very unpleasant now, and we had just completed arranging for the Grange Club being converted into an hospital, with a large flag having a red cross flying on a big pole that had been fixed upon the roof, when an officer came up to say that the Royal Artillery quarters at Belvedere, and also the Mess, had been completely demolished; so the General and I and other officers rode off to see what had better be done.

"In spite of all their efforts, the pirates had been

unable to knock over any of the guns in Brehon Tower, and an attempt to land in boats on the shoal on which it is built had been repulsed with heavy loss. We were, therefore, very pleased to see that the guns there still peppered away at the enemy. At great risk, about midnight, the sea being pretty calm, we had sent off a large boat-load of heavy shells and some cartridges, and they arrived safely, and cheered up the detachment of Artillery in the Tower. The garden at Bleak House was strewn with shot and shell, but the house itself escaped injury.

"It was now four o'clock, but our spirits were cheered by a letter which a fisherman brought from Jersey, saying that a good old gun-boat, fitted with two heavy guns, would probably come to our assistance next day.

"The mortars firing from Herm had done a great deal of damage. Unfortunately we had no ships at our disposal to send over a body of troops, disembark them on the island, and take them. The channels and currents about Guernsey are peculiar, and a vessel drawing much water has to go a roundabout way to get to Herm.

"We were all very anxious to endeavour to close with the enemy; but the three vessels kept out in the Channel, and kept on firing at intervals, and another terrible disaster befell us that day. Two little steamers, the *Rescue* and the *Courier*, had managed to squeeze on board a number of troops from Alderney, and arrived off the harbour about 5 o'clock.

"Signals were made to the steamers from Fort George Signal Station and Castle Cornet to run into St. Sampson's, but they never thought of looking at them. Presently we heard the roar of a broadside of artillery that the Pirate vessels fired at these little steamers, and a lot of shot and shell rattled all round them. The captains then endeavoured to rectify the mistake, and ran their steamers astern. The smoke of the guns hung so thickly over the water that, as we looked through our glasses, we hoped the consequences were not so bad after all.

"However, the pirates waited a bit to allow the smoke to clear away, and then another broadside was fired—this time with deadly effect. Nearly all the shot and shell seemed to strike the two steamers; they heeled over, you could see the steam issuing in angry clouds, showing some serious damage had been done to the machinery, and in another minute the steamers seemed to break up and go down, and a mass of men were struggling in the water. Some managed to swim (not more than nine or ten, I fear) to Brehon Tower, and were taken in there; others secured floating pieces of of wreckage, and I believe were saved; and the Pirate ships lowered boats and saved some; but it was afterwards ascertained that forty must have been drowned.

"Many of us felt very sick at heart after this disaster; but the officers in charge of the militia had not been idle. It had been suggested that the want of cavalry might be greatly felt; so Mr. Davey and some other Guernsey men who were carriage proprietors, placed all their horses at the disposal of the militia.

"Any other time we should have laughed to see an infantry militia regiment mounted upon quadrupeds of various heights, ages, size, colour, and temper, and at times tumbling off; but our hearts were too sad to indulge in merriment, and a squadron of cavalry was formed that was afterwards useful.

"The evening was now closing, but I and other officers went off to a beautiful mansion called 'Beau Sejour,' where a committee of ladies were sitting to prepare lint and other necessaries for the wounded soldiers. We were all very hungry, but one of the young ladies gave us some grapes and biscuits, and there was tea and bread and butter for those who liked it. She gave me something even more acceptable, a small bottle of Guernsey eau-de-cologne, and a large empty cologne-bottle which she filled for me with claret, and I assure you that these luxuries were very acceptable after the heat, bustle, and dust of the day.

"The militia kept the people from going along the sea esplanades; and at length night came on, and the watch-fires of the militia were dotted about in various parts. Many people slept in the streets and fields that night in preference to going into houses; and the weary hours of the night slowly dragged on, and at daybreak the first thing that greeted us in the grey light of the morning was a small cart of provisions drawn by a nice donkey that we often used to see in a field at the back of Morley Chapel. They did not last long, you may be sure. I got a small share—some sandwiches, I think—and felt much refreshed.

"The day as it opened was rather cloudy and stormy; but at daybreak the guns at Brehon, which had done such signal service the day before, occasionally fired at the remaining ships, which at slow intervals returned the fire, but bent their energies to keep under the guns of Fort Irwin, Fort George, and other batteries.

"The men of one of the militia regiments were lying about Cambridge Park with their arms piled, and some of the women of the island were filling their haversacks with provisions, and orderlies and messengers were going to and fro, when the signal stations at Fort George and Castle Cornet announced that the long-expected gun-boat from Jersey was in sight.

"She came along rather slowly, but about 9 A.M. she took up a position near Herm, and fired about twenty shots, upsetting the four mortars that had done so much damage the day before. After this performance, a party of blue-jackets and marines were landed, and chasing the gunners over the island killed, I believe, the whole of them. Then the party set fire to the monas-

tery and destroyed the secret telegraph cable that had been laid to some town in France.

"The worst of all this was that the gun-boat was put *hors de combat* by shells fired from the pirate vessels, so that, though she did capital service in recapturing Herm, and stopping the firing from there, she was no use in opposing the Pirate vessels, from whose masts the black flag still flew.

"We did not say so, but some of us began to think our position was getting tolerably hopeless. The Pirate vessels, at least three of them, were there, and many of our bravest and best officers and men had fallen.

"The firing from the forts I have mentioned continued briskly through the day, until 2 P.M., when the large powder magazine below Fort George blew up with a terrific explosion, hurling death and destruction all around. The guns of the forts and those of Fort George lines now ceased firing, and the situation seemed very bad. However, the General cheered us all up, and declared he was quite certain we should gain the victory, and that within twenty-four hours he felt sure some English war-vessels and troops would arrive to help us.

"One thing was very clear, that though the pirates had made their way into Guernsey waters, there seemed little chance for them *to get out* of them again.

"Some one suggested that it would be a good thing to endeavour to blow up the Pirate vessels with a sort of fire-ship; so a party of the Royal Engineers went off to Port Sampson, and secured a tolerably large sailing boat. They then got a lot of stone and built up a chamber inside, in which they put a few barrels of powder, and boring some holes for the fuze, arranged to tow her by means of a steam pinnace that evening, light the fuze, and send her adrift close to the pirate ships when opportunity arose.

"I had fortunately escaped unhurt, and called in at several of the country houses to suggest that some loop-holes had better be made in the walls, so that if the pirates landed, they could be well peppered.

"The nurses at the Grange Club, which I told you had been turned into an hospital, worked very hard dressing wounds; and the services of a cook had been secured with some trouble, for it was part of the system of the Club (at which a good many used to grumble) that no meals could be had there, and, if you wanted a glass of wine on Sunday, I believe you had to go without it. Those who were able to do so, made their way to the ruins of Fort George: the carnage was terrible. About 800 men and officers had been placed, as the French call it, *hors de combat*.

"The Arcade field was strewn with wounded, dying, and dead men. Fortunately, when the magazine blew up, the General and I and a good many had ridden out towards Fort Richmond, to make a reconnaissance in that direction, so that our party escaped actual injury. The Pirate vessels had apparently suffered much damage to their masts, yards, and crew, and they allowed valuable time that afternoon to pass by. Had they landed a good force immediately after the disaster to the magazine, they could have sacked Guernsey, and exacted a tremendous ransom. In the evening the gun-boat contrived to patch up her damages and get away, and steamed with all speed in the direction of Portsmouth.

"It now became clear enough that if we could hold out for one more day, efficient aid would be certain to come to us from England; so we rode round the positions, encouraging both rich and poor, old and young. The people of the towns were moving off into the centre of the island, so there was quite a stream of vehicles of all descriptions along the road. Many of the wounded soldiers were carried off to the different cottages, and were very kindly treated; fortunately, there was no lack of food nor water, but the groans of the wounded were very painful to listen to. There had been several showers during the day, which had cooled the air and laid the dust.

"The men were also well supplied with milk, as there were plenty of those beautiful Guernsey cows about. Everyone was craving for news, and we all felt sure that if the pirates would only land, we should be able to give a good account of them; for although the number of killed and wounded had been terribly depressing, still all were preparing to make a gallant stand, and do their best to beat off the enemy. The suspense and anxiety were terrible, and more so to the inhabitants of the islands. They had lived there for generations in peace and harmony, and had numerous associations connected with those happy times, and now their loved island had been ruthlessly injured, and their property sacrificed, and preparations were necessarily making for the burial of the dead, but they were determined to fight till the last for their homes and firesides. Late in the afternoon a detachment of the Sark Militia crossed over, and we were very glad of their services. However, the last day was at hand. Both the regular troops and militia had capital examples set them by their officers, whose courage and self-devotion was beyond all praise, so that comparatively little feeling of reaction had set in, and it was a lovely night. The Great Bear and Polar Star shone down upon us, but there was too much nervous excitement about for many to obtain much rest that night.

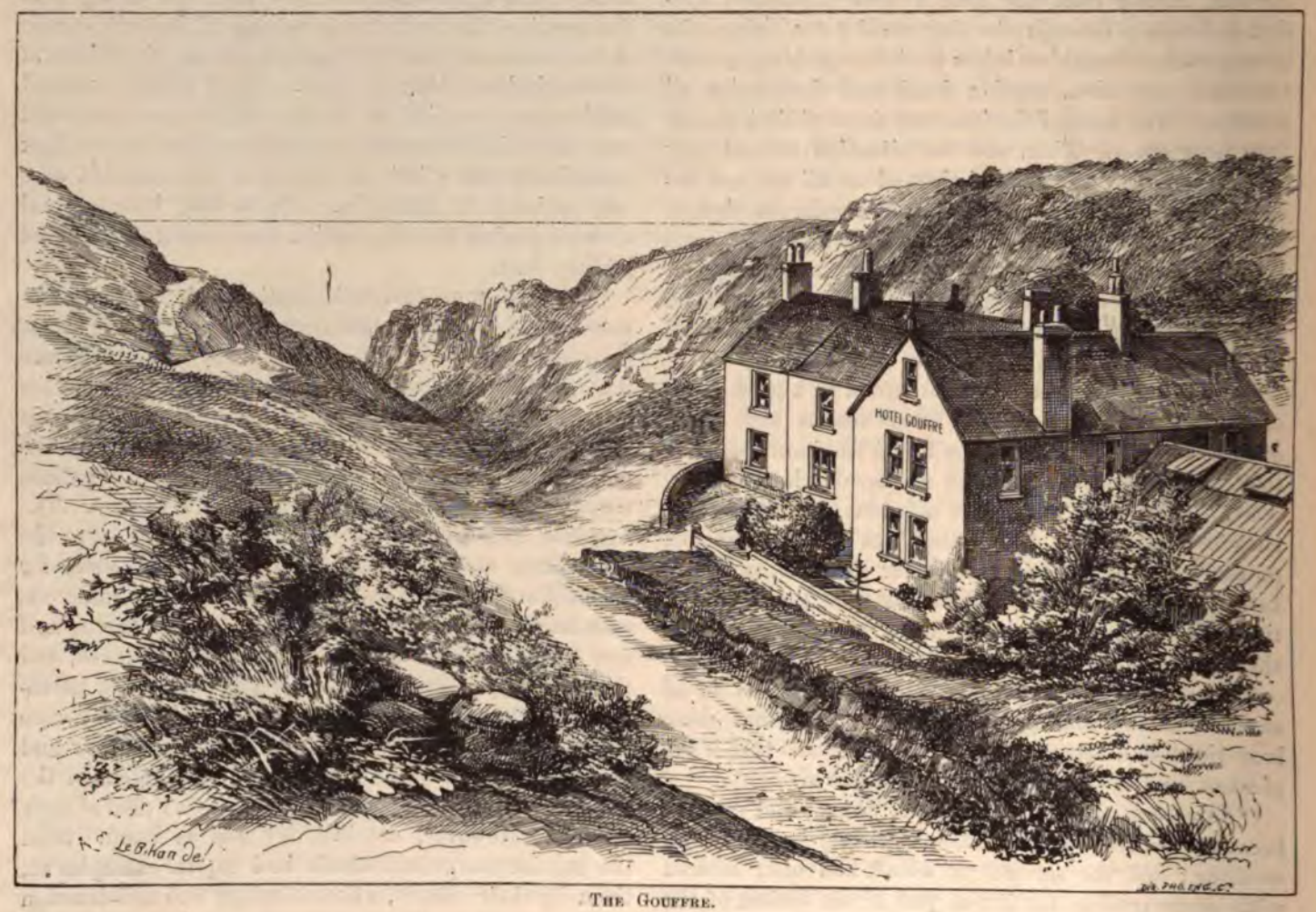
"At length the weary night passed by: some had slept in tents, some in sheds, a few in houses, and many had spent the night upon as soft a piece of turf as they could find.

"I should have mentioned that the Sark Militia brought with them the four guns that were mounted in a battery close to house of the Seigneur of Sark, so

that they should not fall into the hands of the pirates. One was a bronze cannon with an inscription showing it had been presented to one of the Seigneurs' ancestors by Queen Elizabeth in 1572.

"That morning broke in a lovely grey dawn, the sun burst out like brilliant bouquets of Anglo-Brush electric light; baby waves rippled on the Guernsey shores, and fresh invigorating air, laden 'with the briny kisses of the great sweet mothers,' greeted us as we rose from our various resting places, and the lance-like beams of the rising sun spread abroad the 'roseate hues of early dawn—the brightness of the day.'

the town. There was a good deal of damage done that day along the Glattony Esplanade. A very old resident found a shell in his best parlour, but, fortunately, it did not explode. A favourite dog, Flossie, got her fore-paws damaged either with a bullet or splinters of a shell; for when the pirates came within five hundred yards of the White Rock Pier, they sent bullets rattling in fine style, I assure you, and all the people about, as the Yankees would say, speedily 'cleared out.' However, about two hundred of the militia came down to oppose them, and formed line, and loaded and fired at them as fast as they could. Suddenly we found the



THE GOUFFRE.

"You may imagine we all strained our eyes to ascertain what the Pirate ships were doing. Well, they were lowering boats, and a number of men were dropping into them pretty fast. The pirates had evidently also captured a number of Guernsey fishing-boats, and were using them for like purpose. I thought altogether there were about eight hundred of the most murderous, cut-throat looking villains I ever beheld, in those boats. They came along in very fair order, and when they were about six hundred yards from the White Rock Pier, the pirate ship fired several shot and shell into

ammunition was falling short. There was plenty in Cambridge Park, and the Control Department had, I believe, been directed to get a cart and bring it down; but whether the horse was shot or whether there was some mistake, I do not know, but the militia fired slowly and steadily until they had shot away all their cartridges—some jammed in the rifles—and then they had to hastily retire. That movement encouraged the pirates, and they now began jumping upon the pier, scrambling on to the shore, and firing at the retreating militia, whose jammed cartridges caused the loss of several lives.

"By this time many pirates had landed, and, fortunately for us, began to ransack some of the stores where liquor was kept. One shop in High Street, belonging, I believe, to M. Crousaz, was emptied in about ten minutes. I do not know whether he was ever paid; and several other places were also plundered.

"Suddenly I heard a cry: 'The Ladies' College!' and I and some others made our way there. It was now about 11 o'clock. However, we got in there, and barricaded the doors as best we could. We were determined to fight to the last, and, fortunately, though there were not more than twenty of us, we felt desperate, and intended to conquer or die.

"The class-rooms were filled with the children and young ladies, but we brought them into the large hall, and some of us ran up-stairs and fired from the upper windows and killed and wounded a good many of the pirates, who were pretty well jammed up in the narrow street in front of the College, yelling and using most shocking language. If the pirate Captain had detached only a hundred men to take the College, he might have succeeded, but he had sent at least eight hundred, and of these some had got drunk in the town, and others had stopped to plunder some of the shops in High Street and elsewhere; there was such a large number that they were mixed up in a state of helpless confusion. Of course we soon heard them banging at the doors, but they were good strong ones, and kept them out.

"There was no doubt that the various disasters that had befallen us had brought down our spirits, and made many of us feel disconsolate, but they seemed rather to brace the energies of the Lady Principal and the young ladies at the College. It was well such was the case, for they needed intrepidity and untiring firmness against the terrible tide of adversity surging against them. There were bright eyes that day in the room, many soft cheeks, many lovely faces; I often think of them. I wonder where most of them are now?

"However, the doors, of course, were not entirely proof against the furious battering they received, and, at length, the violent blows and furious onslaught indicated that the pirates were upon us. I had two loaded revolvers in my pocket; and in my hand, loaded and at full-cock, was the jewelled single-barrel pistol you know is under the glass case: it was a favourite weapon of mine, and I was a very certain shot with it. You know the hall outside the dressing-room? well, there were about fifteen men of the Royal Engineers there with their rifles loaded, all ready to present. I was just warning them to be very careful, and to fire and shoot accurately, when crash! went one of the large inner doors, and the pirate Captain and a number of his ruffianly crew tumbled into the room. Ten minutes before, two special messengers had been sent through the ground at the back which communicated with the Grange Road to try and meet some officers, and bring up what soldiers could be collected, and, if they could not make a stand, at least sacrifice their lives in defence of the ladies and children.

"Unfortunately, one of the messengers got mixed up in a mob, and so jostled and knocked about that he fell insensible in the road; the other, however, met the officer who commanded the Royal Artillery, and he hastened in through the back entrance, bringing some sappers, gunners, and militiamen with him. They were a rough-looking lot; they looked worn and untidy, and no wonder, considering they had been fighting for some days, fed irregularly (thanks to the Controller), and had gone through much anxiety and hardship. The dogs of the island had, however, been having bountiful repasts upon the meat-bones and scraps that had been left near the watch-fires, and the heat of the sun had touched up the tips of many of the soldiers' noses, and blistered their faces.

"However, to our surprise, the pirate Captain paused. His men looked at him in wonder.

"'I want Sunshine!' at length he yelled.

"No reply was made; a convulsive shudder ran through the room. The officers looked at each other. Throughout the previous days their voices had rung high above the din of battle, giving orders accurately and clearly, but all seemed now spell-bound. A young officer broke the silence by quoting an applicable stanza from one of Sir Walter Scott's novels; every note of his voice resounded through the hall.

"I raised my revolver and fired: the pirate Captain fell dead. With shocking yells the ruffians with him rushed at the ladies, but the soldiers in the hall hastily brought their rifles to the 'present,' and a volley pealed. How many men fell lifeless I cannot say, but someone shouted 'Charge bayonets!' and the gallant fellows gave a cheer, and succeeded in clearing the room of all but the dead and dying, though several of the bayonets were bent or broken.

"It was very horrible, and a dreadful sight. Three or four men rushed forward from some corner, swinging their cutlasses; but the young officer who had quoted the verses sprang forward with a scornful laugh and drawn sword into their midst. The ruffians quailed for an instant, and then attacked him; but he had his back to a row of desks, and calmly parried their thrusts. They did not know that officer had studied fencing under a master whose reputation was European, and that sword had once kept bearded Bedouins at bay. Another second, by a dexterous turn of his wrist, he broke down his antagonist's guard, and thrust him through the throat.

"With another skilful stroke the cutlass flew from the hand of another, and with a terrible wound in his wrist

he fled through the open doors. For a few seconds there was a single combat; the ruffian made a desperate lunge at the officer, who parried the stroke, and, returning it, the fellow fell, run through the heart. It took months to get all the blood-stains out of the floor, but we felt we had saved the young ladies and done our duty At that instant the doors leading into the playground were burst open, and the room was filled with the soldiers that the Officer commanding the Royal Artillery had so opportunely brought.

"The pirates, however, were now streaming away in straggling lines; but they were not yet conquered, for, as they passed down the streets, they fired away, and a good many, both soldiers and civilians, were hit.

"There was a good deal of confusion, and some of the loyal people became mixed up with the pirates, so that we could not fire upon them as they retreated down the hill, and tried to get to the Albert pier. Boys and men now jumped on horses and donkeys, yelling like a lot of devils, and proclaiming everywhere that the rascally pirates were beaten. From streets, hovels, and lanes the population poured forth with sticks, kettles, tin pots, pokers, and every weapon that could be carried, and joined in the pursuit.

"The crowd and confusion was now great, but it was clear that Guernsey was saved. From one of the windows an old man was seen frantically waving an old sword and shouting 'Silence.' He was a grand old fellow, named Brouard, a great athlete in his day, but now old, and feeble in body, but not in mind.

"'*À la lanterne*, my lads,' he cried, and at that minute a band struck up the 'Marseillaise.' The cheeks of brave men paled at that revolutionary strain.

"The populace seemed suddenly to have become changed into wild beasts. I never heard such yelling and language, and hope I never shall again; but when men fight for their hearths and homes they are apt to become incensed with passion, and so it was now.

"A wild onslaught was made on the pirates, and very soon about 100 of the lowest ruffians that ever disgraced the name of man were dangling to lantern-posts and trees, and in a few minutes were dead. The remainder of the regular troops were powerless to interfere, and the officers wisely withdrew them from the scene. I am quite sure that had the troops interfered with the people then, there would have been a sort of civil war.

"In about ten minutes the crowd were melting away, but no one ventured to touch the hanging bodies.

"Our attention and that of the populace was now directed to the pirate ships; the magazine that I told you about, constructed in a boat, had floated down near the three vessels, and exploded with a terrific noise. The destruction was complete. The sea was covered with *débris* and mangled corpses.

"Guernsey was triumphant. The losses had, it is true, been terrible, but there had been no humiliation or disgrace. True, the flagstaffs with the Union Jacks had been shot away from Fort George and Castle Cornet, but what of that! The loved island homes were safe, and people formed 'Mutual Admiration Societies,' and the island rose rapidly from the blow.

"The Guernsey Legislature had never allowed the warnings of the few to be drowned in the clamour of the multitude. They remembered the scene in a far Eastern land, where a King in the zenith of his power saw handwriting on the wall, and none but an inspired man could read it, and tell him he had been weighed in the balances and found wanting, and would lose his kingdom.

"They had seen on the Continent, in the course of a short campaign, the mighty Empires of Austria and France crushed after the fatal battles of Sadowa and Sedan, and well remembered that not many years before the mother's, the maiden's, wild shriek of despair rang from the blood-stained walls of Cawnpore, before the British forces taught India how Great Britain could, when she thought fit, deal her blows. The revolution, or rather attempt at revolution, in Jamaica was a valuable lesson, and many sympathised with the Governor who saved the Island from destruction, but was hounded into exile by the clamour of politicians.

"They would not allow power to pass from the hands of men who from boyhood had been accustomed to command; and political assassinations, and shooting of landlords, and Arrears and Confiscation of Lands Bills had no charms for the people of Guernsey.

"That ancient Legislature took care of its own, and, enforcing the arming and training of its citizens as militia, its manhood were not swayed by designing demagogues whose hotel bills were paid by their silly dupes of admirers. The firmness, self-denial, political courage and foresight which had for generations characterized the gentlemen of Guernsey, found a warm place in the hearts of the generation among whom I lived and loved so well; and should it, my little grandchild, fall to your lot, when I am dead and gone, to go to Guernsey, I hope you will love the little Island well, and bear in mind how nobly in your grandfather's and grandmother's days the citizens of that justly proud—shall I say nation?—successfully defended their island, their hearts, homes, and families, by their almost reckless bravery."

"X."

OUR INDIAN MILITARY STATIONS.

By JAMES C. DICKINSON, Retired Staff-Surgeon.

CAWNPORE.

CAWNPORE, unlike Benares or Agra, possesses no venerable traditions, no ancient historical remains, no architectural attractions. It possesses not, as the land of the "Light of Asia" does, renown for being a city of sanctity and learning for ages out of mind, and which, for its importance and large population, drew thither the great teacher of Buddhism, Prince Siddartha, when he had finished his meditations near Gya. Nor can it be compared to Agra, which possesses the "Crown of the World," the Taj.

"In all the world no Queen had ever such a monument."

Unhappily, a terrible episode—the murder of the garrison of Cawnpore, and of the wives and children of the English who had the misfortune to rely upon the word of that arch-miscreant, Nana Sahib—has given Cawnpore a notoriety in a rebellion abounding with horrors, that will take many generations to obliterate, "and surely, among the sites rendered infamous for ever in the eyes of British posterity, Cawnpore will be pre-eminent as the magnitude of the atrocities with which it is connected."

The Cantonment of Cawnpore, at the time of the mutiny, was a large straggling place, six or seven miles in extent. Although it had many disadvantages, including the excessive heat and dust, residents got to like the station on account of the social advantages, consisting of various amusements, such as private theatricals every week, balls and picnics, dinners every evening, and the general air of hospitality and good-fellowship that prevailed.

The month of May 1857 at Cawnpore was an anxious one for General Wheeler, and the state of the soldiery was such, owing to the stories that were current in the bazaars, and their free acceptance of them, as to show that the old bonds of confidence were utterly broken.

When the news of the mutiny, both at Meerut and Delhi, reached Sir Hugh Wheeler, he was in a town containing 100,000 people, many of them armed, and many of them Mussulmans; he had no fort, and his troops were for the most part disaffected Sepoys. It became necessary, therefore, to consider how he could best defend the lives of the Christian communities. By the mere force of character and the display of unshaken courage and confidence, he overawed the minds of all the disaffected people around him, and held his position till the 5th June. All that time he had with him a few Europeans, who had been hastened up by the dâk carriages from Benares. But the whole European force, consisting of soldiers of the Queen's 34th, and the Madras Fusiliers, and some Artillerymen, did not exceed 150 men. When the Sepoys mutinied, he had only this force of 150 men to rely on, and about forty officers of various regiments. With this small body of troops, General Wheeler had to protect the depôt of the Queen's 32nd, consisting of 120 women and children, and the whole Christian population of that place—including civilians, merchants, shopkeepers, engineers, clerks, pensioners, and their families, to the number of nearly 400 souls. He had very short supplies of food and ammunition, and he was separated from the Ganges by a road and by a line of houses, with their compounds. Against him were assembled the 1st, the 53rd, and the 56th Sepoy regiments of Infantry, and the 2nd regiment of Sepoy Cavalry, a body of men 4,000 in number, which would, in the event of revolt, receive many additions from among the "dangerous classes" (budmashes) of the inhabitants. These men were all more or less animated with fanatical rage, well supplied with ammunition, and led by a miscreant capable of any atrocity and mad with disappointed ambition. Lucknow was only fifty miles off, but no help could be expected from that station; and relief from Allahabad was soon rendered doubtful by the tidings that there had been a mutiny there.

The Cantonment of Cawnpore, as I have before noticed, was a large straggling place. The British lines stretched along the southern bank of the Ganges, and about midway between the two extremities of the Cantonment was spanned by a bridge of boats leading from a point opposite the city to the Lucknow road on the other bank. At the north-western extremity, lying between the road to Bithoor and the road to Delhi, were the principal houses of the civilians, the Treasury, the Gaol, and the Mission premises. These buildings lay beyond the lines of the military cantonment, in the extreme north-western corner of which was the Magazine. In the centre, between the city and the river, were the church, the assembly-rooms, the theatre, and other public edifices; while scattered about here and there, without any apparent system, were the principal military buildings, European and Native; the Native lines lying for the most part in the rear, towards the south-eastern point of the Cantonment. General Wheeler has been, by some writers, considered to have been too old

for so responsible a position at so critical a period. Kaye, however, says: "General Wheeler, though far advanced in years, had lost none of the clearness of his mental vision. He had not become blind to the failings of the Sepoy: he had not encased himself in that hard incredulity which forbade many to believe it possible that the native soldier could ever be 'untrue to his salt.'" In the *Red Pamphlet*, speaking of General Wheeler, the writer says: "He had proved himself on so many occasions so fertile in resources, so ready to overcome difficulties, so prompt, active, and energetic, that he was thought the man of all others most competent to deal with an insurrection of this character—most fitted to unravel the web of mystery in which its origin was then clouded, and to open the minds of the Sepoys to the insensate folly of their proceedings. And if this had been a mere military outbreak, as some have imgained, if the dispossessed princes and people of the land, farmers, villagers, ryots, had not made common cause with the Sepoys, there is every reason to believe that but a portion of the force would have revolted."

The state of the soldiery, as May advanced, was a source of great anxiety to General Wheeler. The most extravagant stories were current among them. The Hindoo and Mahommedan troops on a given day were to be assembled on an undermined parade-ground, and the whole of them blown into the air. These stories were freely accepted by the native soldiers, and no one knew better than Sir Hugh Wheeler that the free acceptance of them showed that the old bonds of confidence were broken, and that the danger was one which it would be most difficult to avert—for nothing was so intractable as a panic. Day by day the peril increased that the Sepoys would mutiny, and he was threatened also by an insurgent population which might at any time overwhelm him. The question of defence then arose. The Magazine in the north-western corner of the military lines was that best adapted for a defensive position in the exigency that had arisen. The Magazine position is thus described by General Neill:—"It is a walled defence, walled enclosure, proof against musketry, covering an area of three acres—ample room in it for all the garrison—close to the bank of the river; the houses close to it are all defensible, and they, with the Magazine, could have been held against any native force, as, having the large guns, with abundance of ammunition, neither the Nana nor the natives could have come near them. The garrison could have moved out and attacked them with the guns, and would have not only saved themselves, but the city; to say nothing of a large arsenal and many thousand stand of arms, artillery tents, harness, &c." Unhappily, however, Sir Hugh Wheeler selected a spot about six miles lower down to the south-east, at some distance from the river, and not far from the Sepoy's huts. There were quarters of some kind for our people within two long hospital barracks (one wholly of masonry, the other with a thatched roof) single-storied buildings with verandahs running around them, and with the usual out-houses attached. This spot he began to entrench, to fortify with artillery, and to provision with supplies of different kinds. The food collected fell lamentably short of the amount required, and the contractors failed to supply the full amount of stores. All else was of the same character—weak, scanty, and insufficient. As to the so-called fortifications, they were so paltry that an English subaltern could have ridden over them on a cast horse from the Company's stud. The earthworks were little more than four feet high, and scarcely bullet-proof at the crest. The apertures for the artillery exposed both our guns and our gunners, whilst an enemy in adjacent buildings might find cover on all sides (Kaye). Why, it has been asked, was not the Magazine chosen, in preference to this weak and almost untenable position? Sir Hugh Wheeler's answer to this was: the first step towards the occupation of the Magazine would have been the withdrawal of the Sepoy guard; and to have attempted this would have certainly given the signal for an immediate rising. Again, it was not believed at that time that the force under Wheeler would be called upon to face more than the passing danger of a rising of the "budmashes" of the city and the bazaars. And finally, it was believed that if the regiments should mutiny, they would march off at once to Delhi.

Neill says: "General Wheeler ought to have gone there at once; no one could have prevented him; if they had done so, they might have saved almost everything they had. There is something awful in the number of catastrophes, which could have been avoided by a common degree of caution." Some military authorities, however, differ from Neill's opinion that no one could have prevented Wheeler from betaking himself, with his women, children, and invalids to the Magazine. Sir Henry Lawrence, in response to General Wheeler's application for the assistance of a few European troops, sent him eighty-four men of the 32nd Queen's, two detachments of the Oude Horse, and a party of Oude Artillery with two guns under Lieutenant Ashe.

These arrangements, and the place of refuge selected, were all that was needed, as appeared to the General and others during the confusion that would arise on the first outbreak of the military revolt. It was calculated the Sepoys would take their departure, and so enable Wheeler and his Europeans to march to Allahabad.

Another unfortunate incident now took place. An appeal was made to Nana Sahib for aid, and this contrary to the advice of Mr. Martin Gubbins, who wrote: "Sir Henry Lawrence concurred in my suspicions, and by his authority I addressed Sir Hugh Wheeler,

cautioning him against the Nana, and stating Sir Henry's belief that he was not to be depended upon."

The object of this appeal was to obtain the assistance of the armed followers of the Nana, to whom the care of the treasury was resigned. It was felt on the one hand that if the Sepoys revolted, they would at once loot the treasury, while on the other to remove the treasure, that was now guarded by the Sepoys who outwardly professed the utmost loyalty, would in all probability precipitate a collision. Two hundred retainers of the Nana, with a couple of guns, were posted at Nawabgunj, which commanded both the Treasury and the Magazine. The collector was assured of the sympathy and friendship of the Nana, who came and occupied his own house at Cawnpore. On the 22nd May the General ordered the women, children, and non-combatants to occupy the place of refuge within the improvised entrenchments.

Then followed a scene of frightful confusion and bad arrangements. Fletcher Hayes, in writing to Sir Henry Lawrence, says: "I saw quite enough to convince me that if any insurrection took or takes place, we shall have no one to thank but ourselves, because we have now shown to the Natives how very easily we can become frightened, and when frightened utterly helpless. During that day (the 22nd) the shops in all the bazaars were shut four or five times, and on the 23rd the same thing went on, and the General was worried to death by people running up to report improbable stories, which in ten minutes more were contradicted by others still more monstrous. The mutinous disposition of the 2nd Cavalry was the chief source of immediate danger; their record was a 'mixed' one; they had disgraced themselves at Punnandurrah, and had been ignominiously disbanded, and another regiment (the 11th Light Cavalry) had been raised in



THE INTRENCHMENTS AT CAWNPORE DURING THE MUTINY.

its place. The progress of mistrust was gradually affecting the Sepoys, and this was confirmed when they saw our people leaving their homes and seeking safety in the entrenchments, or in some of the strongly-built edifices in the neighbourhood: and when the Sepoys beheld the English artillerymen placing guns in position, confidence was at an end." Yet the non-combatants believed themselves to be safe, and General Wheeler on the 1st June wrote to Lord Canning, saying, "I have this day sent eighty transport-train bullocks in relays at four stages for the purpose of bringing up Europeans from Allahabad; and in a few—a very few—days, I shall consider Cawnpore safe, nay, that I may aid Lucknow, if need be." And such was the confidence of this brave old General to hold the Native troops in check by his own personal influence, that when the detachment of the 84th which had been sent from Benares arrived, they were sent on to Lucknow on the 3rd June. As will be seen later on, it was a sad mistake to have allowed these English soldiers to have left Cawnpore. There were too few to keep watch and ward, day and night, with loaded guns, behind the mud walls we had raised for our defence; the entrenched troops were worn out before the outbreak occurred. Fletcher Hayes, writing to Sir Henry Lawrence (May 26th) says: "Last night I went the rounds of our position with the General . . . We came upon one half battery without any challenge or the least exhibition of any alarm on the part of the gunners. I walked up and put my hand on one of the guns, and could have spiked all three with the greatest ease. . . . Dempster, the adjutant of the Artillery, was so worn out with watching at night and performing other duties, that, seeing he was so done up, and could not look after both batteries, I said I would take one, and accordingly remained in charge till daybreak."

During the first days of June there were evidences that the plot between the Sepoys and Nana Sahib was working, as there were frequent interviews between the chiefs of the rebellious Sepoys and the inmates of the Bithoor Palace, and the former well knew that the Nana was with them. On the 4th of June the first outbreak of the Sepoys took place. The 2nd Cavalry were the first to strike, and the 1st Regiment soon followed, to where lay the Treasury, the Gaol, and the Magazine, with Delhi in the distance. These two regiments fraternized with the retainers of the Nana. The Treasury fell into the Mutineers' hands, and the gates of the Gaol were thrown open and the prisoners released. The Magazine, with all its supplies of ammunition and the priceless wealth of artillery, was secured by the mutineers, and the latter was carried away on elephants and carts which the troopers had brought from their lines. The 53rd and 56th Regiments, still wavering when fired upon from Wheeler's entrenchments, broke at the third discharge of the British cannon, and made their way in wild confusion to Nawabgunj. Not all, however; "some, still true to their salt, followed their old masters into the entrenchments, and were faithful to the end of their lives." The mutineers then proposed to march to Delhi, but this was frustrated by the wily designs of Nana Sahib, who saw that if he took the troops to Delhi he would be relegated to a subordinate position, whereas in the neighbourhood of Cawnpore he would be supreme master of the situation.

The return of the mutineers to Cawnpore was a heavy blow to the English, and soon after, Saturday the 6th of June, Wheeler received a letter from Nana Sahib, announcing he was about to attack the entrenchments.

Thus the dream of the garrison that it would be able, on the departure of the rebels, to drop down to Allahabad, was dispelled. All now recognized that the hour of danger was near—there was no time to be lost. The order was given for all the English to concentrate themselves within the entrenchments. Soon everyone was at his post waiting for the approach of the enemy, but for some hours afterwards there was no sign of the threatened attack. About noon the booming of the cannon told that the enemy had commenced their operation. Then the bugle sounded; and our fighting men went to their posts, and prepared themselves for the unequal conflict. And now commenced a siege "the miseries of which to the besieged have never been exceeded in the history of the world," which lasted from June 6th–27th. From the first it was doubtful if the entrenchments could be held for more than a fortnight; but when the enemy obtained mortars, and sent shells among the crowded garrison every day, resistance was protracted in despair. "There was nothing to keep the besiegers out of the entrenchments but the contrast between the indomitable pluck of the Few and the flaccid irresolution of the Many." The enemy had an immense wealth of artillery, for, in addition to the guns and stores taken from the magazine, were other supplies of both found at the Ghaut, which were about to be despatched to Roorkhee. While the siege continued many artillerymen were killed, and their places were filled by volunteers and amateurs. In the heroic annals of the siege, deeds of daring and gallantry were performed by our officers and men as well as by civilians. Foremost amongst those who defended the entrenchments was Captain Moore of the 32nd, "a soldier of a commanding presence, light-haired and blue-eyed, whom no toil could weary, no danger could daunt. Wounded at the commencement of the siege, he went about with his arm in a sling: but the strong spirit within him defied pain. Day and night he laboured on, now in the trenches, now heading desperate sorties against the enemy; but even when he ceased to hope, he neither fainted nor failed. There was no greater heroism than

this English captain's in all the war from first to last, no name more worthy than his to be recorded in the rolls of our English chivalry." Along with him, "the Agamemnon of the defence," were other brave men. Vibart, of the 2nd Cavalry, Whiting, of the Bengal Engineers, Jenkins, Captain of the 2nd Cavalry, and Mowbray Thompson, together with other soldiers who performed deeds of valour in the very face of death. Amongst the heroes who defended the entrenchments must be mentioned the gallantry of civilians; nor must the womanly self-devotion, and patient endurance, and calm courage of the wives and daughters of the fighting



THE WELL, CAWNPORE.

men of Cawnpore be forgotten. On the 10th June, one of the two barracks—the thatched one—in which were gathered together the old and sick, the women and children, caught fire. The scene that ensued was one of the most terrible in the entire history of the siege, every man trying to save the sick, the wounded, and the infirm from being burnt to death, while the enemy poured shot and shell upon the burning pile which guided their fire through the darkness of the night. By the destruction of this barrack, more than half the women and children were left houseless, and all the hospital stores and surgical instruments were lost. There being no longer shelter, the Sepoys who had been faithful to us throughout the siege were now told to depart—their number was estimated at about one hundred, with a considerable number of Native officers. The mortality in the garrison now daily increased, and many of Wheeler's chief officers had been shot dead; the loss of every man was a grievous calamity, all hope of relief seemed gone, the news of the approaching help from Delhi proved false. As time rolled on, and the position of the garrison became more perilous, on June 23rd, the centenary of Plassey, the great assault which was to have been made, and "to have humbled the Feringhees to the dust, and to have revenged the victory of Clive," was in the issue a disastrous failure, due to the bravery of Mowbray-Thompson and his companions. Famine now afflicted the garrison, and it was impossible to hold out much longer; they were short of food, water, and ammunition, starvation was staring them in the face, and to cut their way out, with all those women and children, was equally impossible. It was resolved, however, to make a sally, and if possible, drive off all the assailants. It may be supposed that everything which human daring could do was done that day, but the forces of the enemy were overwhelming, they were enabled to use their artillery with terrible effect.

Then followed the capitulation, the terms of which were accepted only on account of the women and children, on a sworn promise of protection; and terms were made securing a safe passage down the river for the women and children and all their companions. This was on the 27th June. So forth from their entrenchment, in the early morning, went the remnant of our garrison with the women and children who had outlived the horrors of the siege. "The beautiful had left their beauty, the young had left their youth, in those battered barracks; and even the children had old and wizened features, which told they had lived long years in the last miserable month." On the march down to the Suttee Choura Ghaut one of the first incidents of this cruel massacre was the Sepoys cutting down first Colonel Ewart, a brave and good man, and then, after making some profession of not slaying women, Mrs. Ewart was presently cut down, and lay a corpse beside the body of her husband.

The dreary procession marched to the place of embarkation, where the vessels lay in shallow water; they were the ordinary budgerows of the country. Into these our people now began to crowd, wading knee-deep in the water, and scrambling as they best could up the sides of the vessels. And when all were embarked, they awaited the friendly order to push off and drop down the stream towads Allahabad, the great goal of ultimate deliverance.

These expectations were, however, never to be realised. Every boat that had been prepared for our people was intended to be a human slaughter-house. On the 27th June was perpetrated one of the most cruel massacres ever read of in history. Here is Tantia Topee, the master-butcher's own account of the butchery: "The Nana," he declared, "got a female who had been captured before, to write a letter to General Wheeler, to this effect: that the Sepoys would not obey his orders, and that, if he wished, he (the Nana) would get boats and convey him, and those with him in the entrenchments, as far as Allahabad. An answer came from the General that he approved of this arrangement, and the same evening sent the Nana something over a lac of Rupees. The following day I went and got ready forty boats, and, having caused all the gentlemen, ladies, and children to get into the boats, I started them off to Allahabad. In the meanwhile the whole army, artillery included, having got ready, arrived at the Ganges. The Sepoys jumped into the water, and commenced a massacre of all the men, women, and children, and set the boats on fire. They destroyed thirty-nine boats. Four days after this the Nana said he was going to Bithoor, to keep the anniversary of his mother's death."

The escape of the single boat which held Moore and Vibart, Whiting and Mowbray-Thompson and others was little short of a miracle, and those who wish to read an episode of English heroism should consult Mowbray-Thompson's book. On June 29, Mowbray-Thompson and Delafosse, with privates Murphy and Sullivan, reached alive the territory of a friendly Oude Raja, and survived to tell the story of Cawnpore. Those who drifted away in the boat while Mowbray-Thompson and his companions were fighting on shore, were overtaken at Kala Kunker, and all its living cargo taken back to Cawnpore, where the Nana ordered the men to be killed at once. "The women and children, with greater refinement of cruelty, were suffered to survive their husbands and their fathers, and reserved for a second death. Then the women and children were sent to swell the crowd of captives which these conquerors of the hour were holding, still in store, as a final relish for their feast of slaughter."

The hour of retribution was fast approaching, and the Nana, who had been proclaimed Peishwah, began to tremble as he heard that the English troops were advancing.

Still this savage miscreant gloated over the idea that there was still one more victory to be gained—the massacre of the helpless women and children, and the captives in the Beebeeghur. On the afternoon of the 15th July, Doondoo Punt Nana Sahib learnt that Havelock's army had crossed the Pundoo-Nuddee, and was in full march upon his capital. Nana Sahib and his advisers, after much confused discussion, decided to go out and meet the enemy on the road to Cawnpore. But the mighty conquerors of Cawnpore had one more victory to gain, they could slaughter the English prisoners. Whether the foul design had its birth in the depth of the Nana's black heart, or was prompted by one still blacker, the order went forth for the massacre of the women and children in the Beebeeghur. It is not necessary to relate in detail again the hideous tale of this massacre. The Sepoys on guard, it is reported, refused to slaughter the women and children. So some butchers — Mussulmans — were summoned from the bazaar, who went in with swords and long knives among the women and children as among a flock of sheep, and slashed them to death with the sharp steel. "Next morning the dead and dying were brought out, ghastly with their still gaping wounds, and thrown into an adjacent well. Some of the children were alive, almost unhurt, and now they were running about scared and wonder-struck beside the well. To toss these infantile enemies, alive or dead, into the improvised cemetery, already nearly choked-full, was a small matter that concerned but little those who did the Nana's bidding. But beyond this wholesale killing and burying, which sickened the whole Christian world, and roused English manhood in India to a pitch of national hatred that took years to allay, the atrocity was not pushed. None were mutilated, none were dishonoured." What followed is a matter of history—the battle of Cawnpore, with Havelock in command, terminating in the flight of the Nana, the re-occupation of Cawnpore, and the fearful retribution. On the 20th July Neill arrived, and how he punished all the murderers he could get hold of, need not be repeated. He said, "I wish to show the natives of India that the punishment inflicted by us for such deeds will be the heaviest, the most revolting to their feelings, and what they must ever remember. The well in which are the remains of the poor women and children, so brutally murdered by this miscreant, the Nana, will be filled up, and neatly and decently covered over to form their grave; a party of European soldiers will do so this evening, under the superintendence of an officer." A marble shrine, with a statue of the Angel of Peace, by Marochetti, now covers the well, and the sad scene has been surrounded by a lovely garden. The spot is one of the most pathetic in India, and, to quote the words of the legend around the shrine, will for ever be "Sacred to the perpetual memory of a great company of Christian people, chiefly women and children," who lie beneath. A memorial Church has also been built in commemoration of the events of the siege. It occupies the site of General Wheeler's entrenchments in the cantonment. The style is Romanesque, and the material consists of massive red brick, relieved by buttresses and copings of buff freestone.

Cawnpore did not bring any marked reward to Mowbray-Thompson and Delafosse, Murphy and Sullivan, who performed such heroic deeds. The Victoria Cross, it would have been thought, would have been bestowed on them, yet not one of these officers could boast of possessing this order. Another officer also, whose name does not appear in history, Lieutenant R. Chalmers, performed a deed in these perilous times worth recording. In 1857 he was attached to the 1st Oude Irregular Cavalry, which mutinied at Pershadeepore on the 10th June. After narrowly escaping with his life, and enduring many privations and escapes, Lieutenant Chalmers reached Allahabad, where he joined the Ferozepore Regiment of Sikhs, forming part of the small column under Major Renaud who had orders to push on at all hazards to the relief of Cawnpore.

At Lohengah, forty-four miles in advance of Allahabad, Major Renaud received intelligence of the massacre of the Cawnpore garrison, and Lieutenant Chalmers, on learning that he was in want of a messenger to carry the news to General Neill at Allahabad, and receive fresh instructions, immediately volunteered to perform the service; an offer which Major Renaud gladly accepted, though he did not conceal from him "the almost desperate nature of the task he had undertaken," as the country through which he had forced his way was teeming with a hostile population, and "the insurrection had immediately closed in on his track as soon as he had passed." Lieutenant Chalmers, nothing daunted, succeeded in accomplishing the perilous duty, and, after escaping numerous dangers, rode into Allahabad soon after midnight on the 2nd July. "It is scarcely possible," wrote Sir Henry Havelock, "to imagine a service of greater risk, one requiring greater determination and adroitness, or involving more important results to the force, whose movements and very existence depended on a speedy reply to the letter."

Lieutenant Chalmers now joined Havelock's Volunteer Cavalry, and participated in all the actions with that force, including the battle and re-capture of Cawnpore, 16th and 17th July, and Bithoor on the 18th July, in the first and second advance to the relief of Lucknow,

the first relief of Lucknow, and its subsequent defence for two months under Outram, and was present at the final capture of Lucknow. He was twice wounded, and had a horse shot under him. The records of the Victoria Cross rarely furnish braver deeds than have been recounted of the Cawnpore heroes, and why they were not decorated with the coveted honour will ever remain a mystery. I am indebted to Captain Rathbone Low (late Indian Navy) for the narrative of the brave act performed by my friend and brother officer the late Colonel R. Chalmers.

J. C. D.

NAVAL AND MILITARY NOTES AND QUERIES.

Maritime Supremacy.—The theory on which maritime supremacy was primitively based, was that naval as well as military salutes should render the saluter temporarily powerless. Thus firing of guns, or dropping sword-points, or presenting arms, symbolically deprived the ship or soldier of all power of aggression for the moment; dipping colours and lowering sails, and manning yards, all present the same idea of respectful innocuity. In early times, when salutes were given in the open sea, they consisted only, between vessels of equal rank or right, in a certain number of cannon-shots; but in cases of inequality—and with the finely-shaded differences which formerly existed these cases were the more numerous—the inferior side had to add some additional sign of reverence, to strike or hoist its flag, to furl its upper sails, or to change its tack, according to the exigencies of the case. The relative significations of these various forms is clearly indicated by a writer in the *Encyclopédie Maritime*, who says, "*Le salut du canon est majestueux, celui du pavillon plié est humble, si on l'amène tout bas il est de la plus grande humilité, et même avilissant.*" England was quite aware of this; so in the time of James I. she insisted that her maritime supremacy should be recognized by the instant disappearance of the flags and sails of all other ships, English vessels showing their opinion of their own importance by offering no kind of greeting in return. Of course this vexed other countries, and provoked resistance from such of them as were strong enough to risk it. It is true that Philip II. had introduced this sort of action some time before, by ordering all Spanish ships to refuse to salute any foreign vessel, and to fight and go to the bottom rather than give way; in his tremendous pride, he had even forbidden his captains to lower his flag in any foreign port. Encouraged by these examples France soon after gave precisely similar instructions to her fleet, and it was while these instructions were in force that Sully raised the fury of his Government by lowering the French colours to an English squadron, when he was on his voyage to England as an ambassador. This last event brought about so bitter a discussion between the two Governments, that at last, as the best way to get out of it, an Order in Council was issued, telling English officers either to avoid French ships altogether, or to stipulate for a simultaneous salute. The French imitated this solution, but it was, of course, impossible to practically maintain it in force; so in 1689 Louis XIV. dealt with the matter afresh in the old way, by once more requiring his officers to oblige the vessels of every other State to salute them first, wherever they might be. In the eighteenth century a change took place; the hauling down of flags of weaker Powers was, by degrees, no longer claimed. Russia and Sweden agreed in 1721, by the treaty of Nystadt, that their war-ships should meet on a footing of equality, and that vessels of both nations should give the first salute to ports or fortresses of the other. This example was followed; distinctions began to disappear; though, as a consequence of the old theory of royal honours, the ships of Monarchies still continued to claim the first salute from the vessels, and even from the ports, of a republic. At last, in 1787, France and Russia agreed by treaty that "henceforth salutes shall no longer take place at sea." The same stipulation was soon after introduced into the conventions between the Courts of St. Petersburg, Stockholm, and Copenhagen, and, later on, into successive treaties between Russia and the two Sicilies and Portugal. We may consequently thank Russia for having been the first to introduce a total change into the character of maritime ceremonial, and to give to it its present character of simplicity. The opinions of the publicists on the condition of the question since 1815 may be summed up as follows:—

1. All Sovereign States are equal in everything that concerns maritime ceremonial.

2. Salutes are obligatory on no one; they are pure acts of courtesy.

3. If a salute is not returned, explanations may be asked for, but no hostile action can be taken.

4. If two ships salute in the open sea, the inferior officer should begin.

5. Ships carrying sovereigns, princes, or ambassadors, always receive the first salute.

6. All these conditions apply to war-ships only; merchant-ships owe no salute at all.

R. O'Byrne.

THE BRITISH EMPIRE AS A MILITARY POWER.

By A STAFF OFFICER.

THE article by Mr. Arnold Forster in the September number of the *Nineteenth Century* on "Our Superstition about Constantinople," has aroused considerable interest, not only on account of the views it enunciates with regard to the Eastern Question, but also, more especially, because it suggests the necessity, at the present juncture, when our Colonies are beginning to assert their right to a voice in Imperial affairs, of devoting some time to the review of our policy with regard to the other great nations of the world. Upon the result of such a review many important issues depend, one of which I propose to consider here.

With the main contention of Mr. Arnold Forster, that we have no vital interest in the final solution of the Eastern Question, and that our traditional policy with regard to it is a serious bar to the closer union of Great Britain with her Colonies, I have no immediate concern. Whatever may be thought of the views of the writer, every patriotic Englishman will sympathize with his aims, and will receive with all due respect opinions advanced under the authority of a name which has contributed so much to the Federal union of the British Empire. In the course, however, of his arguments, Mr. Arnold Forster asserts one thing and assumes another, which involve matters of so great moment to the Empire, that they cannot be accepted without examining the grounds upon which they stand. He asserts that Great Britain is no longer a Military Power, and he goes on to assume that, once we cease to meddle with European politics, we shall be free from the obligation of maintaining a considerable military force. Such and similar statements have been made from time to time, and are so readily accepted, without question, by the public, that it is very desirable to consider how far they are justified by facts and political conditions. I propose, therefore, to seek for an answer to the two following questions:—

1st. Are we a Military Power at the present time; and, 2nd, supposing that we cease to meddle with European politics—except, of course, in so far as our interests are most directly concerned—is there any necessity that we should be a Military Power?

Commencing, for convenience sake, with the second question, I shall consider first how far we, as a Power possessing Colonies and Dependencies in every quarter of the globe, are liable to be brought into hostile contact with the other great nations of the world.

So long as national morality remains at the same level as it stands at to-day, war is a contingency which two nations must always be prepared to meet, (1) when they have a common frontier, (2) when they have strong interests in the same localities, (3) when they have naval or commercial ports, or insular positions in the same waters, (4) when one nation is striving to gain a footing in a locality where the power of the other has hitherto been paramount, (5) and, generally, when one nation has some possession which is coveted by the other. By applying these conditions to ourselves it will be seen that we are liable to be drawn into war with the following powers:—

(1.) With *France*, on account of divergence of interests (*a*) in Egypt, (*b*) in China, where we both have possessions and commercial interests, (*c*) in Lower India, (*d*) in the Red Sea, (*e*) in the Mediterranean, where the interests of both nations are very important, (*f*) in the South Pacific, where both have possessions, (*g*) in West Africa, where our possessions on the Gambia and at Sierra Leone have many interests conflicting with those of the French on the Senegal and Upper Niger, (*h*) in East Africa, where both have possessions and interests, (*i*) in the West Indies, where both have possessions, (*k*) in South America, where the territories of British and French Guiana are in close proximity to each other, (*l*) in Canada, where the French have sentimental interests.

(2.) With *Germany*, on account of differences (*a*) in South Africa, where the territories protected by both nations are contiguous, and where the actual possessions will probably soon join, (*b*) in East Africa (Zanzibar), where both countries have interests, (*c*) in West Africa, where we have interests in the German possessions, and protectorates in close proximity, (*d*) in New Guinea, where our protectorates join, (*e*) in the South Pacific, where we both have possessions and interests, and where spheres of action have been agreed upon, (*f*) in China, where the Germans are developing strong interests, (*g*) in Europe, concerning Heligoland, which occupies a very important position at the mouth of two great water-ways.

(3.) With *Italy*, concerning questions (*a*) in the Medi-

terranean, (*b*) in the Red Sea, East Soudan and Abyssinia, (*c*) in Malta, (*d*) in Egypt.

(4.) With *Russia*, on account of questions affecting (*a*) India, (*b*) Persia, (*c*) China and the North Pacific. No stress is laid here upon our mutual interests in Asia Minor and East Europe, as these are due entirely to the superstition about Constantinople, which we are invited to cast off.

(5.) With *Turkey*, on account of (*a*) Egypt and the Soudan, (*b*) Cyprus, (*c*) questions affecting the Mussulman power.

(6.) With *Spain*, on account of (*a*) Gibraltar, (*b*) the West Indies, (*c*) the North Pacific.

(7.) With *Portugal*, about (*a*) Madeira, where we have interests, (*b*) South-east Africa, where our frontiers will probably eventually join, (*c*) South America, where British Guiana joins Brazil.

(8.) With *Holland*, on account of differences (*a*) in New Guinea, where our protectorates join, (*b*) in Borneo where our protectorate joins Dutch possessions, and in the Eastern Archipelago, where we both have interests and possessions, (*c*) in South America, where we have a common frontier joining British and Dutch Guiana, (*d*) in the West Indies.

We are liable also to wars with the following non-European countries:

(1.) *The United States of America*, about (*a*) Canada and Canadian matters, (*b*) questions concerning the Panama Canal, (*c*) affairs in the South Pacific, where we have common interests, (*d*) West Indian questions.

(2.) With *Mexico*, about matters affecting British Honduras.

(3.) With the Republic of *Guatemala*, about the same dependency.

(4.) With *Venezuela*, about (*a*) questions concerning Trinidad, (*b*) British Guiana.

(5.) With *Brazil*, about British Guiana.

(6.) With the *Transvaal* and *Orange Free State*, about South African questions.

(7.) With *China*, where we have possessions and commercial interests, and with whom we have common frontiers.

(8.) With *Persia*, where we have important interests.

It is not to be pretended, of course, that there is a reasonable probability of our becoming involved with each of these countries in the near future, or even that it is essential for us to be prepared to undertake hostilities with them all. With several of them, however, there is more than a reasonable probability of our having serious diplomatic differences, and it will most likely be found that, if we are prepared to meet probable contingencies, we shall be in a position to deal with those questions also which may possibly come up for settlement. The cases mentioned, however, by no means exhaust the list of our liabilities. To a nation having great interests in every part of the world it is impossible to foresee the direction in which difficulties may next arise, or the questions which may give occasion to them. Our commercial interests, for example, are so strong, and anything affecting them gives rise to so much excitement in this country, that it is quite possible that we may find ourselves involved in war in quarters where we have no actual possessions. Lastly may be mentioned the question of an occupation of Holland or Belgium by a Great Power. Such an eventuality would almost necessarily drive us from our attitude of neutrality with regard to European affairs, not only on account of our treaty engagements, but also in the interests of our own security.

Withdrawal, therefore, from questions of European policy, it is abundantly clear, will not relieve us from political connections and complications with foreign nations, nor will a policy of promoting the interests and furthering the wishes of the different parts of the Empire usher in for us a reign of universal peace. On the contrary, the stronger the voice of the Colonies in our foreign policy, the greater will be the chance of differences with those Powers (and they are not few) whose interests are opposed to ours. As evidence of this it is hardly necessary to quote such recent cases as those of Angra Pequena, Port Durnford and Zululand, in South Africa; New Guinea, the Samoa Islands and the New Hebrides, in the South Pacific; and the Canadian Fisheries in the West. It will probably be found, indeed, when the Colonies have a voice in foreign affairs, that the pigeon-holes of the Foreign and Colonial Offices are full of similar questions, which have hitherto been kept carefully out of sight of the English public.

But if our liability to become involved in war with European and non-European Powers be admitted, we have yet to consider whether in case of necessity our interests can be upheld by naval forces only. To do this it is necessary to examine briefly the ends which a nation proposes to itself in undertaking a war, and the means which it adopts in order to secure these ends.

War between civilized nations is resorted to when one nation or both have some object to gain, which the other will not concede willingly. The side which commences the war does so because it believes itself able to take by force what it cannot gain by diplomacy. When war is declared, the object of each belligerent is to make its opponent yield to the terms which it seeks to impose. This applies just as much to a non-aggressive as to an aggressive Power; for when a nation is forced into war against its will, it must endeavour to wrest from its opponent such advantages as will guarantee it from being molested in the future.

To procure the submission of its adversary a belligerent Power attempts to destroy his moral force by defeating his troops, and by occupying his capital or

some part of his territory, and administering the government; or it seeks so to injure his trade by living upon the country and throwing into confusion all commercial affairs, that a continuance of war becomes intolerable. In the latter part of the question a most important factor is the enormous loss which modern war entails upon civilized nations, both on account of the large number of combatants employed, and the extraordinary costliness of war material, and also because of the injury which the commerce of both combatants necessarily suffers. A nation which acts by naval means only can bring these to bear upon an enemy in the following ways: it can destroy his fleet; it can sever his water communications with the distant parts of his empire; it can stop his maritime trade; it can blockade his coasts, bombard, or extort indemnities from undefended ports, and attack and capture his coast defences.

As a Naval Power, therefore, we could deal with an enemy (1) by destroying his fleet, supposing ours to be decidedly superior. But a necessary preliminary condition is that the enemy should consent to meet us at sea, a most unlikely thing, if our superiority was undoubted. (2) We could sever his water communication with the outlying parts of his empire. To do this, however, we must be not only superior at sea generally, but superior in every quarter of the globe, which argues an enormous total preponderance of naval power, and, at the same time, a great dispersion of ships. (3) We could destroy his maritime trade. But whatever enemy we might be engaged with, it is certain that we should have five or six times as many trading vessels exposed to attack as he had; and in whatever proportion our armed cruisers out-numbered his, our unprotected ships would out-number his in a still far greater proportion. (4) We could blockade his coasts. A blockade, however, except when favoured by exceptional geographical conditions, is a very difficult operation, and it cannot be attempted without a great superiority of naval force. The blockading force, moreover, is neutralized, and is not available for other operations. Further, a blockade is too slow in producing an effect to satisfy the conditions of modern war. It has also the serious disadvantage that it injures neutrals as much, or almost as much, as the enemy, and it thus excites a strong feeling of animosity against the nation which adopts such a plan. (5) We could bombard or extort indemnities from an enemy's undefended ports. If, however, we examine the map, we shall find that our opportunities in this respect are very limited, whilst we ourselves offer to a Naval Power an almost incredible number of unprotected points of great commercial importance. (6) We could attack and destroy his coast fortifications. This, indeed, might be done, but the attack of sea-ports is at best a costly operation, and the result, in this day of torpedoes and submarine mines, must always be very uncertain.

Our powers of injuring an enemy by naval means alone are, indeed, very limited, and it is impossible to see how in this way we could force him to yield to terms disadvantageous to himself. It is, in fact, very doubtful whether, with all our naval superiority, we should not suffer in a war with a Naval Power more than the enemy. Contemporary history gives ample proof of the impossibility of achieving great results by sea. In the Crimean War how much did the superiority of the allied fleets contribute to the Treaty of 1856? In the American War of Secession the conditions were exceptionally favourable for the employment of naval forces. The Federal party had an overwhelming superiority at sea, and yet their navy contributed comparatively little to the subjection of the Confederates, except in so far as it acted in co-operation with the land armies. The achievements of the Austrian fleet in 1866, of the French in 1870, and of the Turks in 1877, had absolutely no effect upon the issue of these wars.

On the other hand, the superiority at sea, backed by an efficient land force, places an insular Power such as Great Britain, in a position of extraordinary advantage. It enables us, while resting secure from invasion, to attack an enemy in his own territory, and thus to inflict upon him all the hardships and loss of war. There is with us, of course, no question of marching upon Paris, Berlin, or St. Petersburg; that, from the nature of our circumstances, is not to be thought of. Supposing, however, that we were possessed of an efficient army, we could, if forced into war with an European Power, and acting with an ally, despatch a force which would have an important influence upon the result of a campaign, not only on account of its actual strength, but also because, assisted by a fleet, it would enable us to shift our base according as the coast-line offered facilities, and so to put the enemy to considerable disadvantage. If acting without allies, we could land troops on the extremities of an enemy's territory, and move them from point to point by sea. By threatening an invasion at different points, we could keep a relatively large force employed in watching our movements, and if an enemy had reason to fear anything from another European Power, he would be placed in a position of great perplexity. But out of the Continent of Europe we should be irresistible, especially against European Powers, whose possessions would be at our mercy. In fact, to an insular Power with a superior navy an efficient army is indispensable. It is the complement of the naval force, the barbed head to the spear. The very essence of the advantage of our naval superiority is the power to despatch troops into an enemy's territory without the risk of being invaded ourselves. Without

an army this advantage is taken from us; and an enemy has this strong inducement to make war upon us that, however much he may attack us, his own possessions are secure from molestation.

But there are some wars which it is our duty to be prepared for, which would necessarily involve us in military operations by land on a more or less extensive scale. Of such the most threatening is the case of an invasion of India by Russia, or of a war with Russia in Afghanistan. If anyone sits down calmly, and counts the cost of such an undertaking—considering first the force which would undoubtedly be collected at a base of operations at no great distance from our frontiers, connected by rail with Europe, and, secondly, the measures which must be taken to defeat the attempt—I venture to say that he cannot escape the conclusion that a force of no less than 200,000 men must be put into the field, in addition to the troops required to preserve order in the interior of the country. It will be incumbent upon us in such a case not only to have a strong army to guard the threatened frontier, but to concentrate also a still stronger force to operate beyond our borders, and to strike at the enemy's possessions, or his line of advance. Standing by itself, this question is sufficient to impose upon us the necessity of being a military Power. It is only as a Military Power that we can hold India. If these views are placed side by side with those of foreign writers, it will be seen that they are on the side of economy, not on that of prudence.

Second in importance comes the question of a war between Canada and the United States. Happily such a war is, in the present state of our relations with the States, a most unlikely contingency; nevertheless, it cannot be left altogether out of account. It is hardly possible to over-estimate the force we should require to guard such an immense frontier-line as that between Canada and the States, and to meet the forces which would be deployed against us.

Thirdly may be mentioned the case of a war in Egypt with a Mediterranean Power, or with Turkey, when we were not able to prevent the transport of troops into Egypt; or, possibly when, at the commencement of hostilities, the troops of a foreign Power were occupying Egypt, as in 1801. It is needless to say that such a war would tax our military resources to the utmost. As, however, the question of Egypt is intimately connected with that of Constantinople, which by hypothesis is excluded from the present discussion, too much importance need not be attached to it here.

Next comes the case of an invasion of Holland or Belgium by a Continental Power. In such a case we should be called upon to meet the military nations of the Continent in their own element, and this would demand from us a combined naval and military operation on the largest scale.

Such contingencies, also, as wars in South Africa, with the Transvaal and Orange Free State; in China, as in 1860; in Persia, as in 1857; in South or Central America, or New Zealand, must be taken into consideration. These wars might not strain our resources as to numbers, to the utmost, but they would impose upon us the necessity of despatching to the most distant parts of the world, and of maintaining in the field for some time, forces of considerable strength, and in case of complications with other nations we should be seriously weakened.

Last to be mentioned is the case of an invasion of Great Britain. If this should ever be attempted, and if an enemy's army should ever actually reach our shores, the only thing, under present conditions, which could stand between us and annihilation is a powerful field force.

In considering these cases of wars which may possibly be forced upon us, each case has been taken singly. It is hardly necessary to add that there is no reason in the world that they should come singly, if they come at all. We may be attacked by a combination of enemies, or we may have to despatch expeditions to operate against enemies in different parts of the world at the same time. Of such operations we have had, in recent years, plenty of experience. In 1879–80 we had expeditionary forces in Afghanistan and South Africa; while in 1884–85, we had on hand, at one time, campaigns in Egypt, South Africa and Canada, and at the same time were on the very verge of war with Russia. It is most probable, indeed, that if a Great Power wished to attack us, it would select a moment when we were engaged with enemies far away from home.

If these cases be considered on their merits, it is hard to see what ground there can be for the allegation that we need no longer attempt to be a Military Power. The bond which unites the different parts of an Empire or Commonwealth is the obligation to unite in the defence of the interests of each part against aggression. The secret of Imperial federation is the adoption of a means of applying the united power of the empire to promote the interests of each colony. It is, indeed, impossible for us to inaugurate our union with the Colonies by divesting ourselves of the responsibilities and sacrifices which devolve upon an Empire. Such a course would inevitably lead to separation and disintegration.

But some qualification for these deductions may be sought for from the definition of the term "Military Power." What sort of a Military Power is it incumbent upon us to be? It may be conceded at once that we cannot be a Military Power in the sense that the term is understood on the Continent of Europe, nor is there any necessity that we should attempt it. Our interests lie beyond the Continent of Europe in the main, although, it is well to bear in mind, it may be necessary for us

to defend our non-European interests in Europe. We must, however, be able to defend any of our possessions against invasion, and we must have a pointed head to the spear of our naval supremacy. If we take as the minimum of our requirements the condition that our possessions must be secure from attack by land, we shall probably find that this will cover the other condition of providing us with a sufficiently powerful force to take full advantage of our naval supremacy, and to intervene with an ally in Europe in case our interests should require it. If these conditions are fulfilled, we shall undoubtedly be entitled to call ourselves a Military Power.

The second question to be considered is: Are we at the present time a Military Power—a Military Power, that is, in the sense which has just been defined? On this point Mr. Arnold Forster's views are not encouraging. He states that we are no longer a Military Power, "except under certain circumstances and in certain directions." This assertion unfortunately cannot be gainsaid. It is impossible to represent our condition in more favourable terms. The extraordinary changes in military affairs of the last quarter of a century have had little effect upon us; we still retain that faith in the invincibility of English troops against any odds, which dates from the beginning of the century. When our diplomacy is thwarted, and our most important interests are endangered, we reply by threatening to mobilize the 1st Army Corps. This at present is the utmost military effort we can make. We are promised, indeed, that before long we shall be in a position to dispose of two Army Corps, but, till several important questions are settled, it is difficult to understand how even the 1st Army Corps can be placed upon a war footing within a reasonable time. This "compact force," as for want of a better epithet it is euphemistically termed by the daily press, which consists of some 20,000 bayonets and 2,800 sabres, is a sufficiently modest weapon with which to protect our interests in every quarter of the globe. It is true that it might, as we are told so frequently, decide the issue of an European war, if thrown into the balance, just as the last straw breaks the camel's back; but the balance must indeed be even for the fate of millions to be decided by 25,000 men. The military power of a nation is measured not by strong frontiers or impregnable fortresses, but by the force with which it can strike an enemy. The weight of the blow which we can strike at the present time is represented by 25,000 men, and in time it may be 50,000 men. This is less than the striking power of the least of the petty States of Europe, and it can hardly be said to be sufficient to satisfy the conditions just defined. It is clearly not sufficient, for example, to make the Indian army able to defend the North-Western Frontier; nor is it sufficient to deal with the cases of wars in Egypt, in Belgium or Holland, or of an invasion of the United Kingdom. This force, it must be remembered, is the largest which we could put into the field in any part of the world except in India, even in England itself.

But if the number of our troops who can take the field is small, the number of those enrolled and more or less trained is very large, and the sum of money annually expended upon them is colossal. The total war strength of Great Britain is put down at 559,000, and the total annual cost is between eighteen and nineteen millions. Deducting from the war strength 70,000, the strength of the European army in India, which is certainly able to take the field, when circumstances permit, we have 489,000 men, out of whom we create in war time an army of 25,000 or 50,000 men. Truly this is a small mouse to be produced by the labour of such mountains. With bare facts like these before us it is scarcely wonderful that a Chancellor of the Exchequer should resign on the question of military expenditure. It would be interesting to obtain from the Secretary of State some information as to how he proposes to employ the 439,000 men in time of war who cannot be placed in the field. It is true that we require garrisons for Imperial fortresses, and Reserves for the fighting troops; but 439,000 men seems a somewhat excessive number for these purposes. But even 489,000 is far from being the total number of men available for war purposes in the Empire. Canada possesses some 40,000 men, the Australasian Colonies about the same number of troops of all descriptions, and South Africa could easily produce from 10,000 to 15,000 men in time of war at the shortest notice. Almost all the other Colonies have small forces of Militia, Volunteers or native levies. The total number of men available and more or less trained is, thus, not less than some 600,000, exclusive of the Indian Army of about 200,000 men, and exclusive also of the number of registered men in Canada, South Africa and elsewhere, who are liable under local laws to be called out for service.

It appears, therefore, that, potentially at least, the British Empire is certainly a Military Power, and that it possesses forces amply sufficient for all possible requirements. Unfortunately, however, these forces are powerless to injure an enemy; all he has to fear is some 50,000 men. The difficulty with us is not that we have too few soldiers, but that we cannot avail ourselves of the services of those we have. It would be a lengthy and tedious task to trace the causes which have brought about this state of affairs, and which make us in military matters different to all other nations. An important clue is, however, furnished by the characteristics of the English race, and by the views of the British public on all great military questions affecting the country. English people being cold-blooded are not naturally aggressive; their attitude is by preference defensive. Our policy with regard to European nations has always

been defensive and non-aggressive. We have not sought to interfere with them, but have taken up a position to cover our interests. This same spirit has pervaded our military system, and it has even been adopted almost systematically on the field of battle. A large proportion of our soldiers are organized solely with a view to defend the territory in which they live, and are not available for service out of that territory. "Defence not defiance" is the motto of our Volunteers, and this motto implies that an enemy must come and seek them upon their own ground. The prevailing idea of the English people is that in a great war we shall simply attempt to defend our territory. The practical result is that each quarter of the globe contains a small defensive force organized on a system of its own, armed as seems best to its rulers, and capable of operating only in the one particular spot. For example, the six Australian Colonies have defensive forces differing in every point widely (and probably designedly) from each other. It is not, therefore, astonishing to find that each Colony can help itself very little and its neighbour not at all. In one possible case, and in one only, can the armed forces of the Empire be of use to it in time of war. This supposes that an enemy should divide his forces in proportion to ours, and send a part to attack each Colony. But should he be actuated by no such sense of fairness, and concentrate a considerable force against one part of the Empire, whilst neglecting the rest, the world would then be treated to the extraordinary spectacle of three-parts of the British Empire looking on whilst the fourth part was being eaten up. It will be retorted that the navy's duty is to secure us against such a misfortune; but the navy may possibly find itself unequal to the task of guarding every approach to the Colonies, and, moreover, some of our possessions can be invaded by land. All the defensive forces, too, are organized on the assumption that each Colony is liable to be invaded by a hostile force.

The fallacy at the root of our military system, and it is a very serious one, is the belief that invasion and attack can be warded off by purely defensive measures. Because our policy is non-aggressive, it is thought that our forces must be used only to repel an invader. Such an attitude, however, is not only not calculated to promote the safety of the Empire; on the contrary, it is a direct invitation to other nations to attack us. The defensive has no existence as a principle, and a permanent attitude either in strategy or tactics. A nation's security, so far as its military and naval forces are concerned, depends upon its power of injuring an enemy. Germany is the best example of a nation whose policy is defensive. She is secure from attack because of the injury she can inflict upon an assailant. So thoroughly is the necessity for holding correct views upon this point recognized upon the Continent that the term "defensive" is now rendered "temporizing"; this implies that the defensive attitude is only adopted temporarily with a view to enable the side which temporizes eventually to attack the enemy. It was just in this sense that our troops acted in the Peninsular War and at Waterloo, when they acquired such a reputation for acting on the defensive. In strategy the necessity of proceeding to the attack of an enemy is greater than in tactics, for by so doing a nation keeps a war off its own soil and transfers it to that of the enemy. A very good example of the English view of the part we are expected to play in war is furnished by Mr. Arnold Forster. He suggests that we should "inform our enemies, if we have any, that if they wish to quarrel with us they must take to the water to obtain satisfaction." The fallacy involved in this proposition is very apparent. Whatever the cause of quarrel might be, our interests demand that we should take the initiative and attack the enemy where he is most vulnerable. The very last thing to be desired is that he should come and attack us. An invitation to him to meet us on the sea would probably be met with an answer no less evasive than that returned to the king of mediæval history who challenged his adversary to come forth from his battlements and meet him in the open field.

But our system is not only one of unqualified defence; it is one of disconnected local defence. Each colony has no more to do with the defensive arrangements of its neighbours than if they had no connection whatever with each other, and no common interests. Nor are the defensive forces, discordant as they are in organization, available to contribute to the carrying out of any general plan. Each little force is at the disposal of the government of its Colony, and even allowing for the greatest patriotism and the best motives on the part of the different Colonies, it is hardly possible that they should all agree in one method of action and follow it out to the end. Under the present circumstances a great war could hardly fail to end in the separation from us of some of our possessions. Indeed, it is difficult to believe that those Ministers, who are responsible for withdrawing the regular troops from the Colonies and for calling into existence the system of local defensive forces, had not accepted and digested the idea of ultimate separation when they inaugurated this measure. At any rate they understood that each Colony was responsible for its own defence, and that no Colony could help or expect assistance from its neighbour. Any system of defence more extravagant, more opposed to all recognized principles, and more likely to lead to disaster, it is impossible for human ingenuity to devise. With everything at our disposal to make us powerful and secure, we are now weak and unprotected.

Commencing with the data that we have numerical forces amply sufficient for our requirements, and that

the military expenditure of Great Britain and her Colonies is at least as great as needful, no reasonable man can doubt that the defensive strength of the Empire might be enormously increased by adopting an organization based upon strategical considerations. We require a system of defence which should be co-operative, and, above all, we require that the Empire should be defended outside of its own territory. For this purpose our powers of offence should be increased. The measures which should be adopted in dealing with existing forces are those of unification and consolidation The hundred and one petty independent forces should be converted into one imperial army. These forces may be divided into three classes: 1st, those permanently embodied, or Regular forces; 2nd, forces periodically embodied, or Militia; and, 3rd, Volunteers. The first should be available for combined operations in any part of the world; the second should undertake the task of garrisoning Imperial fortifications, and also should be made available, in a limited degree, to act in conjunction with regular troops, and the last should be charged with the duty of local defence. The permanently embodied forces of Canada, Australia and South Africa would thus become integral parts of the regular Imperial army, and their officers would be commissioned in the same way as those of the regular forces at present. The officers and non-commissioned officers should be available to serve in every part of the world, and it would be highly desirable, for this reason, to affiliate the Colonial regular forces with those of Great Britain, so that they might pass periodically from one to the other. The rank and file should be enlisted in the Colonies, as at present, not only in order to save the cost of transport from England, and to create a reserve in each Colony, but also because the best men, from a physical point of view, are to be found there. The officers should be obtained as at present, except that every facility should be accorded to candidates from the Colonies, either by establishing military colleges in them, by holding examinations there simultaneously with those in England, so that the competition should be open to all, or by offering to each part of the Empire a number of commissions proportionate to its share in the Imperial army.

All forces periodically embodied should be put upon one footing, as far as local necessities will admit, and organized as militia. The officers for these troops should be residents of the locality to which they belong, but officers and non-commissioned officers from the regular army should be attached to them for instructional purposes. It is greatly to be desired that the sphere of action of the militia should be considerably extended. In time of war it should be made available to assist in the defence of every part of the Empire, and it should also be used for guarding lines of communication and for garrisoning Imperial fortifications. The militia of Great Britain might well lead the way in a reform in this direction. At present it cannot be sent out of the United Kingdom, except, with the consent of the officers and men, to garrison the Mediterranean fortresses. If it was available in time of war for service in other parts of the world, it is hardly likely that the force would be less popular, and we should get rid of a restriction which has nothing to recommend it but its antiquity.

Lastly, the Volunteer system should be encouraged and developed in every part of the Empire. This form of defensive force has taken root in almost every Colony, and it is now firmly established on a solid basis. The Volunteers, also, should be instructed by officers and non-commissioned officers from the regular army. In time of war they should undertake the duties of local defence, and should set free, as far as possible, the other troops. Both Volunteers and Militia should be brought into intimate connection with the regular forces, and should be available to operate with them when employed in the same locality. Volunteers and Militia should possess a proper proportion of field-artillery. It is much to be regretted that the extraordinary tenacity with which the military world clings to prejudices once taken up has been the means of limiting the rôle of the auxiliary services to that of garrison troops. Foreign nations, however, find no difficulty in organizing reserve batteries in time of war, the horses of which are not maintained in peace time, and there is no doubt that we could do the same. We are informed that field-guns are to be issued to the Volunteers, and it may be hoped that this will be the means of removing the prejudice against the organization of reserve batteries which has lasted so long, as well as of making the auxiliary forces available for independent action in the field.

The conversion of all local forces into parts of an Imperial army necessarily involves the condition that these forces should no longer be at the disposal of the Governments of the different Colonies, except in time of peace, and perhaps, also, in case of local expeditions. Instead of paying for their forces as at present, the Colonies should contribute a sum equivalent to their military expenditure towards the maintenance of the Imperial army. It follows, equally, that each Colony should have a voice in the organization, administration and distribution of the army proportionate to the sum it contributes. The fundamental principle, however, should be that the whole of the Colonial forces form one army, and that in time of war each part of the army should assist, directly or indirectly, according to its constitution, in the defence of any Imperial territory that might be threatened.

It will probably occur to the reader that the Colonies would never consent to be deprived of their regular

troops during war. This objection, however, has been met by the recent action of the Colonies themselves. In 1885 the Australian Governments agreed, when war appeared to be imminent, that war losses should not fall upon the districts attacked by an enemy, but should be shared by all the Colonies of Australasia. This arrangement might well be applied to every part of the Empire, and individual interests would thus be secured against danger.

The necessity for the creation of an Imperial army is urgent, the times are threatening, and the present occasion is favourable. A conference of Colonial delegates has assembled to discuss the question of Imperial defence. If this Conference does not sign the death-warrant of local defence, another opportunity may never be offered. The Colonies are growing with enormous strides; the military forces of some of them have recently been largely augmented, and they will probably increase with the increase of the population, and will become more and more welded into the social and political systems of the different countries. Change must be introduced before change is impossible. Nor can any terms be too great to offer the Colonies that they may accept the proposal. The officers of all Colonial forces should receive commissions in the Imperial army as officers either of Regulars, Militia or Volunteers. Each Colony should be allowed its legitimate share of influence in all questions connected with the army. It follows, also, that the Colonies must be allowed some voice in the foreign policy of the Empire.

The increase of power which will result from unifying and consolidating our defensive system must be apparent to anyone with the most elementary notion of strategy. The numerous local forces, which have little individual value and no collective value whatever, will be converted into an army of great numerical strength. Our strength for defensive purposes will then be very great, because our power of offence will be so much increased. We shall also have the whole resources of the Colonies, in men, in horses, and in war material, thrown open to us in a far more direct manner than at present. The advantages thus secured cannot be over-rated. The Colonies contain the best material in the world for making soldiers on the shortest notice, men of good physique and of adventurous disposition, who are accustomed to a rough life in the open. Lastly, an army common to every part of the Empire would be a bond to promote the closer union of Great Britain with her Colonies. The regular circulation of officers and non-commissioned officers between the Colonies and England would make this connection more real, and would strengthen the ties of interest and relationship which are likely, under present circumstances, to become gradually weaker.

When we possess an army such as has been pictured here, we can afford to be far less affected by questions of European politics than at present. We shall have no occasion to be nervous that our interests are being endangered at every turn. Nor can the argument recently advanced by Lord R. Churchill, that a strong army is a dangerous weapon, because a nation possessing it is tempted to use it rashly, be taken seriously, at any rate as applied to the British Empire. Our statesmen must understand too well the enormous loss and suffering which a great war, even if the issue were successful, would inflict upon us, to resort to arms, except under circumstances of the direst necessity. Political interest no less than patriotism urges them to keep the peace. When we are strong, our enemies also will have a strong motive to avoid war with us, the knowledge that we have the power of injuring them seriously. At present, the motive is entirely wanting. Foreign nations know well, probably better than we do, that, if war were declared to-morrow, we should commence it with at least one arm in fetters.



The Naval History of the Civil War. By Admiral David D. Porter, U.S Navy. (Sampson Low & Co.)

The Civil War of America formed a new era in naval tactics. At the time of its commencement, a quarter of a century since, ironclads were almost unknown. France had scouted the idea of armour plating, and England had not emerged from the stage of doubt and perplexity; the idea was in its infancy. But when the fearful struggle between North and South broke out, each side began to extemporize ships designed to stand heavy poundings at the hands of the enemy—iron and wood, bars and chains, beams and bolts played their part; anything and everything was brought into use, and the results were as startling as the means were incongruous. Ships went down to the bottom with a quick succession which, while delighting the victor, shocked poor startled humanity at the appalling loss of life. Gradually, however, inventive genius came to the rescue, and the since famous Ericsson gave to the world the *Monitor*, which did such good service to the cause of the North that the "turret" principle, on which she was built, became thenceforth the fashion of the day—and this, be it recollected, in spite of the circumstance that, judging by her own experience, vessels of this class are not seaworthy, for she foundered in a gale! The South, on their part, were not unmindful of their duty in endeavouring to fight on equal terms; so they adopted the casemated type of vessel with slanting roof and rifled guns. Great, then, was the excitement when the *Merrimac*, constructed on this principle, met the aforesaid *Monitor*, of turret notoriety,—and which won? As both sides claimed the superiority, it may fairly be assumed that the antagonists were pretty equally matched. Then came "rams"; which, when they *did* manage to hit a vessel just in the right place, left no opportunity for doubt as to the efficacy of these huge, terrible monsters of the deep. But it may, perhaps, be doubted whether they were not more formidable in theory than in practice, for most frequently the adversary managed to move his ship out of the way ere the "ram" could crash into its sides. Lastly there were "torpedoes," the most deadly form of warfare the world has ever witnessed; but it is obvious that in this direction everything depends upon delicate manipulation, intricate machinery, and consummate experience—requisites which, at the time of the American War of Secession, were entirely wanting as regards this novel branch of fighting; hence the teaching of the struggle is but little in this direction, whatever may be the part which the torpedo is destined to play in the future.

It is abundantly clear, therefore, that Admiral Porter has plenty to chronicle, and, taken as a whole, there is, perhaps, not much to find fault with in connection with his manner of treating his subject. It is, perhaps, scarcely to have been expected that an officer wearing the uniform of the United States Navy should refrain from hurling harsh invectives against his brethren in arms who had pulled down the "Stars and Stripes," and hauled up the flag of the Southern Confederacy. Civil war invariably gives rise to bitter feelings and angry sentiments; it is the universal teaching of history. Much, therefore, as one would have liked to have expunged all the paragraphs which cast aspersions upon a people who, albeit we may deem them misguided, fought bravely and honourably—Admiral Porter, in his concluding chapter, himself admits this much—we make no complaint that an American should, after all, be human in his feelings, and mundane in his sentiments; but surely it is scarcely worthy of the Author, speaking in the name of a great nation, to cast aspersions against this country, which, even if they be justifiable in fact, are utterly indefensible on the score of good manners; that there was a very strong feeling in favour of the South is a circumstance which, much as we have always regretted it, cannot be denied. But it was individual sentiment rather than national policy. The British Government acted in a perfectly straightforward manner throughout the whole struggle, and should they not have escaped abuse? Nor should Admiral Porter, in falling foul of the French, have forgotten his history, and failed to remember that had it not been for the assistance of his Gallic friends when the war of independence was raging fiercely, there would have been no United States of America to fly at one another's throats, after an interval of half a century.

Apart from these blemishes, the work leaves little to be desired; the narrative is complete and, we doubt not, accurate, a point upon which it is difficult to pronounce in the absence of individual experience of the war. The style is plain, simple, and unpretentious; and there are excellent illustrations of the principal battles, while portraits of the various persons who took part in the momentous struggle complete the attractions of a volume which gives the best account extant of the most appalling and furious war of this, the nineteenth century since peace and good will were proclaimed as the characteristics of Christianity and fore-runners of the Millennium.

Leaves from Memory's Log Book. By An Ancient Mariner. (W. H. Allen & Co).

Why do sailors write such much more attractive books than soldiers—is it because the latter not infrequently pen bombastic and egotistical experiences, while the former are seldom otherwise than plain, simple, unadorned tales of dailylife? Well, the problem may remain unsolved, but the fact is unquestionable. *Leaves from Memory's Log Book* is no exception to the rule; it is full of rollicking fun, queer experiences, dry humour, and unaffected drollness. The "Ancient Mariner" appears to have seen a deal of service afloat, and to have been a smart officer. Some of his adventures are extremely amusing, albeit there are not perhaps the usual number of hair-breadth escapes and providential deliveries—still, even in this line, there are not a few startling anecdotes and thrilling adventures, such as a mast falling within an *eighth of an inch* of a man's head, a shark snapping off a man's toes in place of his leg, and such like stirring mishaps.

But the most charming tale is anent Sir Isaac Coffin, to whom the Admiralty, in the plenitude of their gratitude, granted in fee simple the Magdalen Islands; but mark the value of the gift—"The fishermen," so runs the paragraph, "pay as little rent as they dare, and if any money is ever to be raised in the island a force must be sent to insist on payment." The result is touching. Sir Isaac received a kettle of codfish once a year from each family—the total annual income derived from this valuable gift being the huge unwieldy sum of £40! So much for Government gratitude to a valued and valuable public servant.

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The work is full of chit-chat and small talk. There is plenty to amuse, somewhat to instruct, and a liberal supply of professional anecdotes and sailors' yarns. It is well suited to while away a spare hour or two in company with an honest son of Neptune, a boon companion, and a straightforward English officer.

The Nation in Arms. Translated from the German of Lieut.-Col. Baron von der Goltz, by PHILIP A. ASHWORTH. (W. H. Allen & Co.)

The art of war has entirely changed during the last few years of the present century. Railways, the telegraph, technical science, new weapons—each and all have contributed to an entire modification of the rules which obtained in former times. This is much, but it is not all. Armies which were wont to be reckoned by thousands are now numbered almost by millions; campaigns which used to be decided by a single battle on a single spot, are now scattered over a wide expanse of territory, since where is the plain that would hold, say, even half a million of soldiers with their *impedimenta?* All these phenomena demand careful consideration and examination; strategy must be remodelled; the precedents of the past must be tested by the experiences of the present. Hence the *raison d'être* of Baron von der Goltz's *Nation in Arms*—a work which treats exhaustively of every subject connected with the military profession.

Like all thoughtful students of history, the author has persuaded himself that wars and rumours of wars will never be banished from the earth, and that only "that nation is secure which is prepared at any given moment to defend its independence sword in hand." Yet some weak-minded enthusiasts would have it believed that the fascinations of peace are so transcendant that the cannon will ere long be converted into the ploughshare, and the lion and the lamb lie down together in peaceful serenity and thoughtless happiness.

It would be impossible to follow the Baron through all the mazes and intricacies comprised in upwards of 400 pages of print; it must suffice to call attention to one or two of the more prominent topics upon which he touches. "The strength of a nation lies in its youth"—such is the assertion, to prove which it is argued that an army comprised of youths and veterans mingled indiscriminately is not homogeneous. "The employment on active service of aged men will only be productive of good fruit in exceptional cases where peril to hearth, home, and family has become dangerously near, and defence is incumbent upon all." Again: "Experience works ever injuriously upon courage. . . . . Those soldiers are, as a rule, the bravest, who know no danger." So the verdict is in favour of young warriors; a conclusion which is eminently consoling to this nation, which cannot, under the present system at any rate, put an army of veterans into the field.

"Too many great fortresses are a source of weakness." Why? Because, in the first place, they "lock up" so large a portion of the combatant strength of the army, while the advantage of having a stronghold whereunto to resort in times of danger is more than counterbalanced by the moral deterioration which follows any attempt to find protection behind a rampart; and, finally, when besieged, it is no easy task to cut a way through the enemy's line, unable as are the defenders to know where and when to make the attempt. Shut up in a fortress, a leader of men degenerates, of necessity, into a mere hero in arms, knowing nought, seeing nought, hearing nought.

The bayonet will still play an important part in the history of the future. True, "modern actions are decided by great masses of projectiles simultaneously hurled at the enemy," but the moral effect created by a body of men pushing irresistibly through a deadly shower of bullets and shells is not to be despised. "Cold steel" will always create a shudder.

Cavalry have one great advantage as compared with infantry: the former can "ride away," but the latter are unable to "run away"; the result being that this branch of the Service should be here, there, and everywhere, never defeated, never crushed, always rallying, always ready. Hence the mounted soldier must always play a safe and important part in the action of the future.

It would be easy to multiply *ad infinitum* the arguments and propositions with which the volume before us is replete, but the laws of space are inexorable, and the reader must exercise his privilege of careful study of a work which is thoughtful, profound, unbiassed—a work from which every soldier has much to learn and many ideas to adopt—a work which deserves, and will doubtless receive, the attention due alike to its interest and its merits.

SUMMARY OF ARTICLES IN FOREIGN SERVICE MAGAZINES.

REVUE DE CAVALERIE. (Paris: Librairie Militaire, Berger Levrault et Cie., 5 Rue des Beaux Arts.)

Kellermann, by General Thoumas (*with a Portrait*)—The German Cavalry (*continuation*)—The Training of Troop Horses in (French) Cavalry Regiments—French Regimental Histories.

REVUE DU CERCLE MILITAIRE—ARMÉES DE TERRE ET DE MER. (Paris: 37, Rue de la Bellechasse.)

The Armament of Infantry and the Formula of Professor Hebler—The Coming Franco-German War—The New German Infantry Equipment—The (French) Army Bill—The Campaign of Buonaparte in Italy (1800).

REVUE MILITAIRE DE L'ÉTRANGER. (Paris: L. Baudoin et Cie., 30, Rue et Passage Dauphine.)

The German Septennate and the New Formations of the German Army on 1st April 1887—The School of Musketry of the Austrian Army—Chinese Troops and Fortifications in Eastern Turkestan—The Veterinary Service in the German Army.

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[To face p. 71.

THE MOLDACOT
POCKET LOCK-STITCH SEWING MACHINE.

In December 1882, in *Leisure Hour*, in an article "The British Soldier," General Mitchell, R.E., drew attention to the unhappy condition of soldiers' wives under certain special circumstances, and advocated consideration for them and their families. This particular number of the magazine is now out of print, and therefore it may be assumed that it has done its work.

The difficulties, and many surrounding circumstances that press heavily on soldiers' wives and families may, no doubt, be ameliorated by habits of self-reliance and industry. Public attention, and the special attention of commanding officers of regiments, are invited to the Moldacot Pocket Lock-Stitch Sewing Machine, of which an illustration is given.



Its cheapness (from 10s. 6d. to 16s.), efficiency, and portability may not only effect a radical change in sewing-machine industry, but fill a decided want for soldiers' wives, and be a great boon not only to them, but to the poorer classes of the community.

There seems little doubt that its low price and portable nature form important factors as compared with the cumbersome character and costly nature of ordinary sewing-machines.

As the stitch forms a perfect lock-stitch, and is calculated to work not only fine linen, but stouter material, it is anticipated that it will prove of inestimable value to soldiers' wives, and other members of the community who have to add to, or gain, their livelihood by sewing. In addition to minimising labour, it reduces the cost.

It certainly appears an extraordinary invention, working with the minimum of friction and complicated gear; and if it really will do all its inventors claim for it, it not only is a remarkable innovation, but it is hoped that regimental canteens may add this elegant, portable, and apparently useful machine to the list of articles sold at those invaluable regimental Depôts. It might be well to introduce it into our Army Clothing Department. The machine only measures 8 inches high by about 2 inches wide and 1¼ inches deep. At the foot is a screw clamp, by which it can be fixed to the edge of a table or on a block of wood, and worked by a child.

The working motion consists of a vertical plunger pressed downwards, and returned into position for the next push, by a spiral spring.

Its construction is marked with simplicity and strength; it has no treadles, and only one little wheel. It is packed with its little appliances, tools, and printed directions in a tiny tin box; the total weight does not exceed 1½ lbs., and it can be sent by Parcel Post for 4½d.

The machine is sold at 53 Queen Victoria Street, and several shops in London and in the country, and has the advantage of working almost noiselessly; its inventors claim for it, that with little practice it will work quickly and steadily, with the minimum of fatigue to the operator, and perform much good work with reasonable celerity.

H.R.H. the Duke of Cambridge, whose interest in the well-being of soldiers' wives needs no comment here, has been graciously pleased to inspect a machine, and permit it to be worked in his presence.

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REVUE MARITIME ET COLONIALE. (Paris: L. Baudoin et Cie., 30, Rue et Passage Dauphine.)

Combined Land and Sea Operations (*continuation*)—The Rapids of Upper Mekong—The Legion of Honour (*continuation*)—The Archives of the Port of Marseilles.

JOURNAL DE LA MARINE. Le Yacht. (Paris: 50, Rue Saint Lazare.)

The Naval Policy of the United States—Trials of the "*Gabriel Charmes*"—The Zalinski Gun—Melinite Projectiles and the Protection of Ships—The Grand Manœuvres of Toulon and Algiers.

NEUE MILITAERISCHE BLAETTER. (Potsdam: Villa Schwanenbrücke: Post, Klein Glienicke.)

Russia's Position in and around the Black Sea, III.—The Present Strength and Organization of the Armies of the Balkan States — Grüson's Armour — Cavalry Sketches—Paris and the North-East Frontier, I.—Considerations on the Campaign of 1859 in Italy, XI.—The Strength of the Swiss Landsturm.

MITTHEILUNGEN UEBER GEGENSTAENDE DES ARTILLERIE- UND GENIE-WESENS. (Wien: Druck und Commissionsverlag von R. v. Waldheim.)

Foreign Experiments in the Manufacture of Small-calibre Rifles—Russian Artillery Progress—The Military Pigeon-System of Italy—The Principal Artillery Trials of 1886—The Russian Mountain Artillery *Matériel*—Reorganization of the Italian Artillery—Considerations on the Defence of Italy—The Cavalry Pioneer Question in France and Russia.

MITTHEILUNGEN AUS DEM GEBIETE DES SEEWESENS. (Pola-Druck und Commissionsverlag von Carl Gerold's Sohn in Wien.)

The Influence of the Moon on the Weather, by Captain v. Bermann—The Electric Light at Sea—The Launch of the (Austrian) *Kronprinzessin Erzherzogin Stephanie*—The Italian Naval Estimates for 1886-87.

RIVISTA MARITTIMA. (Roma: Tipografia del Senato.)

Italian Sailors in Portugal (*conclusion*)—Sea Water (*conclusion*) — The Schichau Torpedo-Boats of the (Italian) Navy—The Italian Naval Estimates (*conclusion*)—Naval Warfare Studied on a Scientific Method.

RIVISTA DI ARTIGLIERIA E GENIO. (Roma: Tipografia e Litografia del Comitato d Artiglieria e Genio.)

The Use of Iron in Fortification—Studies on the Indirect Fire of Field-Artillery—The Minimum Calibre, or the Future Small-Arm for Infantry.

REVISTA CIENTIFICO MILITAR. (Barcelona: Bailen, Numeros 25 y 27.)

The Co-operation of the English in the War of Independence — New Military Criminal Procedure — The Franco-Spanish Frontier—Optical Telegraphy.

THE RIFLE. (Boston, Massachusetts, 4, Exchange Place.)

America's Crack Rifle Shots (No. 24 Captain Mat. Gindele) — Revolver - shooting — The U. S. Sharpshooters—The Smith and Wesson Target Revolver.

We have received the two first numbers of the *Australasian Naval and Military Gazette* (Melbourne: 130, Collins Street West; Sydney: 91, Pitt Street)—a mine of information on all subjects connected with the Australasian services. From the numbers before us we draw special attention to the following articles:—

The Social Status of the Naval and Military Forces of Australasia—Our Mounted Infantry—Armies and Nations—New South Wales Rifle Association—The Naval and Military Forces of Australasia.

AT THE PLAY.

ONE way or another London managers have had rather hard times of it during the best part of the season for the last few years; the series of South Kensington shows, culminating in what may fairly be described as the "Colonies and Injuries," is succeeded this year by the Jubilee, which they fondly hoped would have filled their houses with visitors and their treasuries with coin, instead of which it has all but proved to be the proverbial last straw. London *en fête* is not to be seen every year of our lives, and, as there was a most unusually long run of fine weather, everyone seemed bent on taking their pleasure out of doors—it was very enjoyable and less expensive; and unless a few people, the fortunate possessors of a little money, survive after the "jubilations" and illuminations die out, many of the musical and dramatic enterprises of the season—some of them specially entered on in anticipation of the great influx of visitors—will show the balance on the wrong side.

Three Italian Opera houses open, when for some years lately London has not supported *one*, show the confidence with which their respective managers opened the campaign, and the excellent companies at each deserve a liberal and appreciative support.

At COVENT GARDEN, the head-quarters of the Royal Italian Opera, admirable renditions are being given of those great works, the sources of infinite enjoyment to amateurs, "I Puritani," "William Tell," "The Huguenots," "Sonnambula," "Traviata," &c. &c.; and with Madame Albani, ever welcome, again sustaining the title *rôle* of La Donna del Lago—*la prima donna*, I mean to say—and Madame Scalchi, one of our two contralto queens, we have every reason to be more than contented. Other artists of great ability, Mdlle. Sandra, Ella Russell, Gayarre, D'Andrade, &c. &c., with a well-trained chorus, and the band under the skilful and experienced *bâton* of Signor Bevignani, make a most satisfactory *ensemble*. In "La Sonnambula" the other evening the concerted music and the choruses were the features of the performance; Miss Russell was hardly equal to her

solo music, and some of Bellini's most lovely *arie*, "*Come per me sereno*," "*Sovra il sen*," and "*Ah! non giunge*," were not done justice to. The Count had a very weak representative in Signor Beltramo, a disciple of the *tremolo* school. This opera deserves and requires a really good cast. I hope Madame Patti will not mind my saying that the first time I heard it was eighteen years ago, and her Amina has lived in my memory; Mongini being the Elvino. Lisa did not forget to drop her shawl that night.

Our gallant *impresario*, Colonel Mapleson, thought discretion the better part of valour, and closed HER MAJESTY'S during the Jubilee week, re-opening on Saturday, 25th, with "Fidelio"; Beethoven's "Leonora" being safely entrusted to Mdlle. Lilli Lehmann. Signor Arditi is conducting; therefore, that work is done with skill and judgment, and *cammina da se* that the chorus of Her Majesty's opera is always good.

The artistes' opera, "The Barber," was given by Mr. Harris at DRURY LANE on the 24th ult., at which the second appearance of Mdlle. Sigrid Arnoldson (why does she not take a more easily-written name?) was the occasion of an enthusiastic recognition of her talent and beauty. Vocally and histrionically it is an ambitious part for so young a lady to attempt. "Faust" deserves notice for the excellence of Madame Nordica's Margherita; her voice and method of singing are alike pure and good, as she showed in the part of Elvira a short time before. Her acting wants a little more life. Madame Minnie Hauk made her part that evening the leading *rôle*, and Signor Ciampi *received* a favour in being permitted to play Masetto to her Zerlina.

At the LYCEUM Mr. Irving cannot find room for all who desire to see him and Miss Terry, in some of their best parts before he concludes his season. Madame Sarah Bernhardt will open there on the 18th inst. with "Theodora," to be followed by "Frou Frou," "La Dame aux Camelias," and other French plays.

Are there to be no more "cakes and ale" at the GAIETY? Fancy a heavy four-act drama, with Mrs. Brown-Potter and Kyrle Bellew, whose Orlando I have a distinct recollection of, in succession to "Monte Cristo Jr.," with Nellie Farren and Fred Leslie.

The ADELPHI.—After the 512th performance of the "Harbour Lights" on the 25th ult., the house was closed, and will re-open on the 25th inst. with a new drama by Sydney Grundy and Henry Pettitt.

The GLOBE.—A new farcical comedy, "The Doctor," a version, or perversion, of "La Doctoresse," by F. C. Burnand, held its *première* on the 25th. I am obliged to postpone notice of it until next month.

VAUDEVILLE.—Another long run ended; "Sophia" withdrawn after 365 performances. "Held by the Enemy," transferred from the Princess's, will soon be on the bills, with clever Miss Kate Rorke as the heroine.

Pieces which have run for some time.

OPERA COMIQUE.—"As in a Looking-Glass." Mrs. Bernard Bere, M. Marius, &c.

ST. JAMES'.—"Lady Clancarty." Mr. and Mrs. Kendal, Mrs. Beerbohm Tree, &c. Good Comedy.

OLYMPIC.—Drama, "The Golden Band," *Lever du rideau*, "Freezing a Mother-in-Law."

STRAND—Old English Plays. H. B. Conway, W. Farren, Edward Righton, Miss Alma Stanley, Miss Amy Roselle, &c. Excellent representations.

COURT.—"Dandy Dick," Messrs. Arthur Cecil and John Clayton, Miss Norreys, Mrs. John Wood, &c.

CRITERION.—Mr. Charles Wyndham as David Garrick, Mr. David James, Miss Rose Saker, Miss Mary Moore. All good.

TOOLE'S.—"The Butler" will be withdrawn on 5th inst.

SAVOY.—"Ruddigore." Comic Opera. Mr. Grossmith, Mr. Barrington, Mr. Lely, Miss Jessie Bond, Miss R. Brandram, &c.

AVENUE.—"Indiana," Comic Opera. Miss Wadman, Miss Phyllis Broughton, Mr. Arthur Roberts, &c.

PRINCE OF WALES'.—"Dorothy," Comic Opera. Will shortly be produced an Old English Ballad Opera, "Marjorie."

GRAND, Islington.—"Man and Wife." Mrs. Brown-Potter, Messrs. Collette, Kemble, &c.

The CRYSTAL PALACE keeps up its character for the excellence of its programmes. The management provided a splendid "Jubilee Festival," a working men's *fête*, a marvellous shilling's worth.

The AMERICAN EXHIBITION is the "Wild West" and nothing more. That much of it is a good show: the buck-jumping ponies are well trained. The exhibition itself is a delusion. If we Britishers ran a show of that kind at New York, and called it an exhibition of the arts, inventions, manufactures, products, and resources of Great Britain, great would be the ridicule. And why does Bertram charge 18 cents. for a John Collins or Rye Cocktail?

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SANGER'S THEATRE.—A comedy drama of transatlantic origin, that ran 800 nights at Madison Square Theatre, New York, was performed at Sanger's during the week that ended the 26th ult. The play was entitled "Hazel Kirke." Miss Helen Leith took the part of the heroine. Her acting all through showed a keen appreciation of her *rôle*. She was vivacious and piquante in the lighter portions, and rendered the more serious parts with great emotional power. She is a natural actress of high ability, and will sooner or later take a front place in her profession. She received from an appreciative and sympathetic audience the most marked signs of approval. To Miss André Nevaro was assigned the part of Dolly. She played with all the skill of an accomplished and experienced actress. She is a brilliant singer, and has performed with great success in opera and opera bouffe. Miss Helen Keith, Miss Marie Brian, Mrs. J. F. Brian, Mr. Rayner, Mr. Ralph Calton as Arthur Carringford, and the rest of the company threw themselves heartily into their several parts, and received from the audience their due meed of praise. The piece was not staged so well as it ought to have been, thus causing the scenic effects to rather detract from the merits of the acting. The piece would be seen to better advantage at a West End theatre, with adequate mountings.

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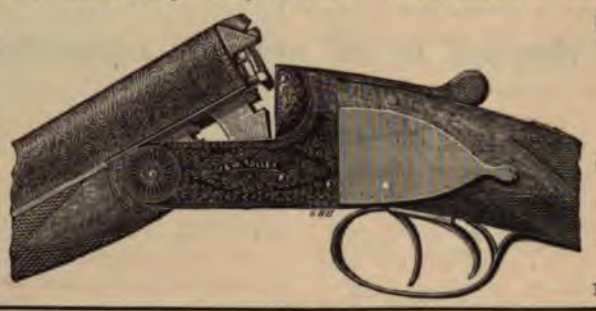
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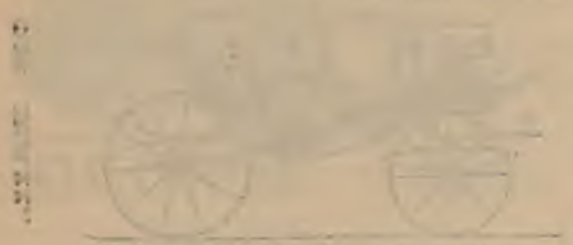
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THE MOST HONOURABLE ORDER OF THE BATH.

By MAJOR J. H. LAWRENCE-ARCHER.

THE "Order of the Bath," so called from the original forty-six knights, said to have been created at the Coronation of King Henry IV., in 1399, having gone through the ceremony of *bathing* before investiture, owes the high estimation in which it is now held to the, as a rule, careful discrimination exercised in the selection of the most meritorious military and naval officers, and likewise civilians who have distinguished themselves in the public service, for the honour of membership.

Although the custom of performing ablutions, says Sir Harris Nicholas, be of great antiquity before the creation of knights, it bore so little resemblance to the regular military order, "created by King George I., on the 18th May 1725, that the institution may properly be divided into three periods; the *first*, ending with the coronation of King Charles II., when, for the last time, Knights of the Bath were made according to *ancient* forms; the *second*, commencing from the creation [or revival] of the Order in 1725; and the *third* from its enlargement, or rather, reorganization in 1815." But a *fourth*, the most important epoch in the history of the Order, must be added, namely, the new constitution promulgated by Her Gracious Majesty, Queen Victoria, on the 24th May 1847.

With regard to the *first* period, many authorities may be consulted, and, amongst them, notably, Selden, and John Anstis, who was Garter Principal King of Arms, and himself officiated at the installation of the original thirty-five knights, of the *second* period (with two more added to the number on the 27th and 28th May 1725), in Westminster Abbey.

In ancient times, we are told that the ceremonies and circumstances at the creation of a knight, were both "courtly and sacred." The "courtly" were the "feasts, the giving of robes, arms, spurs," &c.; the "sacred," the devotional service at, or before, the final consummation of the ceremony—hence, "*consecrare militem.*" But although a variety of forms were in use, knighthood was rarely conferred without the ceremony of "girding with the sword," until, at a later period, the *accolade* was substituted.

A robe, as well as a sword, was the investiture of knighthood, of Athelstan, afterwards King of the West Saxons, by his grandfather, Alfred, and this is the first instance on *record*, in England, of the ceremony.

But, subsequently, the honours of chivalry were not bestowed until the candidate had *purified* himself (of course, only to the best of his ability), morally and *physically*, by the symbolical rite of ablution, or the *bath*; while the earliest mention of the ceremony of bathing, since the Norman Conquest, appears to be that of Geoffry, son of the Fulke, Count of Anjou, who, on being contracted to marry the daughter of King Henry I., was knighted by that Sovereign at Rouen. The custom, however, was *general*, and the knight was not styled *specially* "of the Bath"—the earliest example of the distinct title, "Knight of the Bath," occurring in the inventory of the effects of King Henry V., wherein "divers pieces of rare tarterin* for *Knights of the Bath*" are mentioned.

Another early, and more remarkable, allusion to Knights of the Bath, occurs in the grant of the office of Barber of the Royal Household, in July, 1447. "With the fees of the *Knights of the Bath*, when created, viz., from every knight 24 ells of linen cloth, which was to be *placed* about the *bathing* vessel, with a taper, or carpet of red worsted, and twenty shillings for shaving him." After this period are recorded several creations of Knight of the Bath, as, for instance, at the Coronation of Elizabeth, eldest daughter of Edward IV.

* *Vide* a discussion in *Notes and Queries* on the origin of the Highland *tartans*.

and Queen Consort of King Henry VII.; and when King Henry VIII. created twenty-five Knights of the Bath, having previously obliged them to proceed to the Tower and *bathe*.

It may here be observed that the creation of knights by "Letters Patent" was first introduced, in 1553, by Queen Mary.

King James I. created an extraordinary number of Knights of the Bath, at his coronation; but, as already noticed, the order fell into desuetude after the coronation of his elder grandson.

Of the *second* period, in the history of the Order, Sir Harris Nicholas says, that it was "then, in fact, first called into existence and became so celebrated from the host of distinguished statesmen and warriors, as well foreign as native subjects, upon whom it has been conferred, as to rank amongst the highest *military* orders of Europe." Be this as it may—and, to a certain extent, it may be admitted that there is little or no resemblance between the ancient and the modern ceremonial, &c.—the Order has a claim to antiquity.

On this subject M. Auguste Wahlen, who gives the apocryphal origin of this institution, in the circumstance that Henry IV. was in his *bath* when two widows came to implore his justice, and were heard *then and there*, adds—"A l'avénement de George 1er, Sir Robert Walpole, entre autres plans ingénieux pour apprivoiser les conciences parlementaires, evoqua la mémoire de cette institution—'La résurrection du Bain,' dit son fils Horace, 'fut une banque habilement créee, au capital de trente-six rubans.'"

According to the statutes of 18th May, 1725, the Order was then composed of the Sovereign, the Grand Master (a Royal Prince), and thirty-five Knights Companions—being gentlemen without reproach, and guiltless of heresy, high treason, or cowardice. As might be supposed, Sir Robert Walpole was himself one of the original knights; while, with the exception of five, the others were chosen with the approbation of *Parliament*—the first Grand Master having been the youthful Prince William, the future General at Fontenoy and Culloden. These Knights were created on the 27th May, 1747; and two more were added the next day. In the following month occurred the formal installation of the new Knights (June 7th), at Westminster Abbey, of which a minute description is to be found in the *British Compendium, or Rudiments of Honour*. (London, 1731.) On this occasion, "the Knights, each with his three esquires, proceeded in a most solemn manner, from the Prince's Chamber (their chapter-room), to the west door of the Abbey Church of Westminster. They were apparelled in their surcoats of red taffeta, lined with white, girt about with a white girdle, without any ornament thereon—and in mantles the same as the surcoats . . . having a pair of white gloves hanging at the knot in the middle . . . their mantles adorned on the left shoulder with the ensign of the Order, being *azure*, 3 Imperial crowns, or . . . all upon a star of eight points, silver . . . the Esquires of the Knights Companions in the like surcoats and red stockings (and) the Grand Master wearing a *white* hat and plume." The procession proceeded to Henry VIIth's Chapel, preceded by Grey Longueville, (first) Bath King of Arms* and other officials.

We need not, however, go farther into such obsolete details, since the Order was greatly modified in 1804, and again, in 1815, on the conclusion of the Napoleonic Wars; until, at length, it was entirely reorganized by Her Gracious Majesty the Queen, who promulgated a new constitution, on the 24th May, 1847, when it was declared that "The Most Honourable Order of the Bath"—

(1) "Is composed of the Sovereign, the Grand Master, Knights Grand Cross, Knights Commanders, and Companions; and, that it is attached to the Crown of the United Kingdom, the Sovereign of which is invested with power to annul, interpret, or enlarge the statutes.

(2) "That the Grand Mastership appertains to a Prince of the line of George I., or any other chosen by the Sovereign; and he, as Principal Grand Cross, is to enjoy all its rights and privileges; to exercise all the duties attached to the dignity; to keep the seal of the Order, and to maintain the observance of the statutes. Each grade or class is subdivided into military and *civil* (the *latter* for the *first* time).

(3) "That the Knights Grand Cross, are not to exceed fifty; and no one is to be appointed who holds a rank inferior to that of a Major-General in the Army, or Rear-Admiral in the Navy.

(4) "That the Civil Division of Grand Cross is not to exceed twenty-five members, and these must have passed through the lower grades, and be qualified by personal service rendered to the Crown, in the exercise of public functions, meriting the Royal favour.

"That the Military Knights Commanders are not to exceed one hundred and twenty-three,† and must not be below the rank of Colonel in the Army, or Captain in the Navy. The corresponding Civil Class is limited to eighty‡ members.

"That the Military—or second—companions must not, except under rare exceptional circumstances, exceed six hundred and ninety,§ or be below the rank of Major, and been mentioned in published despatches, for valour, or conduct, in

* In 1803, the College of Arms having disputed the authority of the "Genealogist" of the Order to take cognizance, in the first instance, of the pedigrees and arms of the Knights Companions, the Law Officers of the Crown decided in *its* favour.

† 102 sometimes appears in books on the subject.

‡ 50.

§ 325.

action. The Naval Companions must have been in command of a ship. The Civil Division of this Class is limited to two hundred and fifty members."*

Foreigners, or aliens, may be honorary members.

On investiture by the Sovereign, the "recipient" is introduced between the two junior knights of the particular class, preceded by Bath King of Arms (bearing the insignia on a cushion) and the Gentleman Usher of the Scarlet Rod; and, kneeling down before the Sovereign (assisted by the Grand Master), is duly decorated. If the knight designate should be absent on service, the authority of the Sovereign may be delegated, for his reception into the order, under a commission bearing the sign manual, countersigned by the Grand Master.

All the Knights and Companions are required to place on record, in the College of Westminster, their verified armorial bearings, titles, and other particulars.

On ceremonial occasions, the Knights Grand Cross take precedence next after baronets; the Knights Commanders took formerly after the Knights Grand Cross of St. Michael and St. George, but now after G.C.S.I., and so on.

A Knight Grand Cross, at his "reception," and on all solemn occasions fixed by the Sovereign, wears a mantle of scarlet, lined with white taffeta, and fastened by a cord of white silk, with two gold and red silk tassels. On the left side is embroidered the star, which, for the Military or Naval, is a Maltese Cross, pointed with globules placed on a silver star, and having, in the centre, on a field *argent*, three imperial crowns, *or*, &c., within a red fillet inscribed, in golden letters, "Tria juncta in uno." In the Civil Division the Maltese Cross is omitted.

On "Collar Days," a Knight Grand Cross wears a golden collar composed of nine imperial crowns, alternating with eight *combinations* of the rose, thistle, and shamrock issuing from a sceptre, in enamels of the proper colours, and *linked to the crowns* by white enamel "knots." From this collar is suspended the badge, a Maltese Cross of white enamel, pointed with golden globules, and having a golden lion *passant guardant*, crowned, in each retiring angle; and, in the centre, within a red fillet, inscribed with the legend, in gold, "Tria juncta in Uno," the *combined* rose, thistle, and shamrock issuing from a sceptre, between three imperial crowns.

For the Civil Grand Cross, there is the same centre, but within an oval fillet, bearing the device in gold.

On other occasions, a Knight Grand Cross has the badge suspended from a broad crimson ribbon, passing from the right shoulder, to the left side; a Knight Commander, by a narrower ribbon, round the neck; and a Companion, by a small badge and narrower ribbon, fastened by a buckle on the left breast.

The Star of a Civil Commander, is silver, of four large and four small clusters of rays, with the same centre as the badge; and, for a military or naval, the centre is embraced by two laurel branches (ppr.) issuing from a small azure scroll, with the device, in gold, "Ich Dien."

The decorations are returned on promotion in the Order, or at death.

A Knight Grand Cross is entitled to bear "supporters" to his arms, and to encircle the escutcheon with the collar and badge of the Order. A Commander substitutes a ribbon and badge; and a Companion bears the latter at the shield's point.

The Seal of the Order bears the Imperial Arms; impaling, "azure three Imperial Crowns, *or*," within the legend "Sigillum Honorabillisimi Ordinis de Balneo."

The Officers of the Order are, the Dean of Westminster, Bath King of Arms, Registrar and Secretary Usher of the Scarlet Rod—originally WHITE.

Instances have rarely occurred of the degradation of a knight, and of his subsequent rehabilitation, the most remarkable (and unjust in the former instance) having been one of England's greatest naval heroes;* nor is a case unknown of a Companion resigning his decoration, and being reinstated on expressing contrition for his presumption.

Thomas Carlyle was offered, by the late Lord Beaconfield, the decoration of the Civil Second Class, but declined the honour as inappropriate.†

Many additional decorations of the Bath were recently bestowed on the occasion of the Celebration of Her Gracious Majesty's Jubilee; and the reflection arises—what a difference between the old order of things, when George I., the insecure sovereign of a *small* Kingdom disturbed by rebellion, proceeded in procession to Westminster Abbey, to revive the Order of the Bath, in presence of a few hundred citizens of doubtful loyalty—and the grand procession to the same venerable pile, exactly one hundred and forty years and fourteen days after, when that monarch's representative, the Queen of England and Empress of India, ruler of the greatest and richest Empire of the world, and of subjects numbering nearly half of the whole human race, passed through tens of thousands of, not only loyal, but admiring and sympathetic subjects; while strangers marvelled at the political phenomenon.

* In *Whitakers' Almanack* for 1887, it is shown that there were then (January), exclusive of the Sovereign, the Prince of Wales and the Duke of Cambridge, and of both Divisions, G.C.B., 78; K.C.B., 216; C.B., 923; Honorary, 22; total 1,239 members.

* Lord Dundonald.

† Sir C. J. Napier (Scinde) it is said, on principle, refused to pay the customary fees on being made a G.C.B.

L. A.

"ORIENT AND OCCIDENT."

NOTES OF A JOURNEY FROM LAHORE TO LIVERPOOL VIA CHINA, JAPAN, AND AMERICA.

By MAJOR-GENERAL R. REVELEY MITFORD, Author of "To Caubul with the Cavalry Brigade."

(*Continued from page 306.*)

AT 10 A.M. on Friday, July 2nd, the bell of the ss. *Belgic* rang to warn all visitors to leave the ship; hearty farewells were hurriedly exchanged, and five minutes afterwards the anchor was at the cathead, and the screw churning the water astern into a sandy froth as the vessel slowly swung her bows round to the east. We remained on deck as long as a glimpse of Japan could be seen on the horizon, and then went below to prepare for the sixteen days' voyage to San Francisco. The *Belgic*, although now chartered by an American firm, was originally built and owned by the well-known "White Star" Line, so she still hoisted the British ensign and bore the insignia of her first owners, as is, I believe, the invariable rule. She was a magnificent four-masted vessel of four thousand tons register, forty-two feet in width and over four hundred in length, lighted throughout by electricity, and with electric bells not only in every cabin, but in each berth. Her boats were large and numerous, and she carried also two large life-rafts on pontoons; but the most remarkable part of her deck arrangements was the double pile of Chinese coffins placed right aft, for the accommodation of any Celestials who might die on the voyage and wish to be sent back and buried in their native land.

The Chinese passengers were comfortably berthed in well-ventilated quarters forward; while the saloons for meals, music, smoking, and the ladies' and our private cabins, or "state-rooms," as they were invariably called after the American fashion, were amidships, and therefore unaffected by the heat, smell, and quiver of the engines, which were placed further aft. The private cabins were particularly well provided with fresh air through large ventilators; the whole of the arrangements for the passengers were on the most comfortable and liberal scale, and the decorations of the saloons both handsome and suitable.

We were thirty-eight passengers in all, one half being Americans, and the other representing several European nations. An English gentleman gave us some excellent music, playing whenever he was asked; he was a Doctor of Music, and to a thorough knowledge of the art added the charms of delicate touch and magnificent execution. The ship was remarkably steady, and the weather at first fairly propitious, though often the cold was so great that we preferred the spacious saloon to the chilly deck. We ran a north-easterly course at first, going as high as 47° 58′ N., in which latitude we crossed the 180th degree of longitude on July 9th, and consequently had two Fridays and eight days in the week. This fairly puzzled one of our party, who came into breakfast in a bewildered state of mind, asking whether to-day was yesterday or to-morrow? and saying that he had certainly gone to bed on Friday night, yet had got up again on Friday morning! I must say for my own part that it looks strange to see in my diary "Friday, 9th July, No. 1," "Do., No. 2."

Two days before reaching port the weather changed; a thick fog set in, and we congratulated ourselves on the loneliness of the sea—not a sail having been sighted since we left Yokohama—nothing but sea-birds and a few small whales. The fog thickened, and the sea got up as we neared land; the "fiddles" appeared on the saloon tables, and the dismal fog-horn—ironically called a Syren—sounded at intervals of five minutes day and night. However, the precautions for the safety of glass and crockery were not needed, for the *Belgic* hardly acknowledged the influence of the swell by pitch or roll, and we soon caught our first glimpse of the New Continent, Cape Reyes looming though the fog on the north, and immediately afterwards the Golden Gates came into view, not looking at all "golden," but gloomy, cruel and forbidding. Seal Rock lay under our starboard bow, Alcatraz Island ahead, with its foam-lashed rocks and frowning fortifications, when, suddenly turning southward, the densely-built slopes of San Francisco rose before us. The bay was alive with traffic, and the docks and roads crowded with shipping, through which monstrous white ferry-steamers, like moving terraces, threaded their way, whistling, hooting and groaning in the discordant and maddening manner which seems peculiar to American harbours.

Our pleasant, prosperous voyage of sixteen days was over, and at 3 P.M. on the 17th July we moored to the wharf. Considerable delay took place before anyone was allowed to go on shore, and then all our luggage was subjected to a most searching examination in the shed which did duty as a custom-house; but though the officials were rigorously minute in their inspection they were also very civil, folding up dresses and replacing bonnets as if they had passed their apprenticeship at a milliner's.

It was a strange scene! A rough wooden shed above, a rough earthen floor below; open boxes, unstrapped rugs, frantic passengers, impassive officials, hetero geneous masses of men's clothing and ladies' linen, Japanese curios, and Chinese silks all mixed and jumbled together! At length we were released, and it was not until some days had elapsed that the reason for this unusually strict scrutiny leaked out; it appeared that some opium had been smuggled over from Japan a short time before, and the custom-house people were specially alert. They found nothing in the passengers' baggage, but we heard afterwards that a valuable haul of opium had been made on board the *Belgic*; a quantity of the highly-taxed drug having been found concealed in different parts of the ship, some cunningly stowed away in false bottoms to the meat-kegs.

more quiet surroundings, and the "elevators"—*Anglicé* "lifts"—make the stairs of no consequence. We found the sixth floor was full, but obtained a room on the next *étage*, large, airy and well-furnished, with a deep bay-window, a comfortable bath-room, and a washing-stand in a cupboard with water laid on through taps, as on board ship; this system of shutting up the washing arrangements in a little dark cell of their own is very usual in America.

By the time we had looked round our quarters and made ourselves comfortable the dinner-hour had arrived, and we descended in the "elevator" with several other guests on their way to the public dining-room, an immense hall containing forty square tables, each laid for eight people, and illuminated by several electric lights and many gaseliers. The *ménu* was lengthy and varied,



The Golden Gate.

But though we had "passed the customs," a still more disagreeable and annoying ordeal lay before us: after making over our baggage to an "Expressman," seeing it labelled for the Palace Hotel, and taking his receipt, we thought our troubles were over; but on emerging from the shed we were instantly surrounded, seized, pulled and jostled by a crown of rough vagabonds—cab-drivers and touts—shouting, pushing, cursing and yelling with might and main.

At length we struggled into a hackney carriage and were driven to the Palace Hotel, one of the monster caravanserais of the States, six stories in height, covering three acres, and filling a whole block with its tiers of bay-windows. In these great American hotels the higher rooms are preferable on account of fresher air and

containing such novelties as clam-chowder (fish soup), stewed terrapins, peach-pie, and other dishes equally strange to the European eye and palate. The waiters were negroes—"coloured helps," to give them their local designation—dressed in full evening costume, with immaculate shirt-fronts setting off their ebony faces, haughty in appearance, but benignly condescending in manner. A burly "Uncle Tom" took us under his special protection, and displayed a fatherly interest in us during our stay. We saw very little of the gorgeous over-dressing so generally ascribed to the fairer denizens of the "Metropolis of the Far West," but this was explained by the fact that San Francisco was "out of town" at this season; all the fashionable people being at Monterey and other holiday resorts.

On the Sunday after our arrival we attended morning service at the neighbouring Church of the Advent, where a clergyman, with a magnificent voice and a most distinct enunciation, read prayers and preached. The American liturgy differs but little from our own, which is very likely the reason why the few alterations, coming unexpectedly, strike one the more forcibly; it was difficult to refrain from smiling at the false modesty shown in the changes in the *Te Deum* and elsewhere.

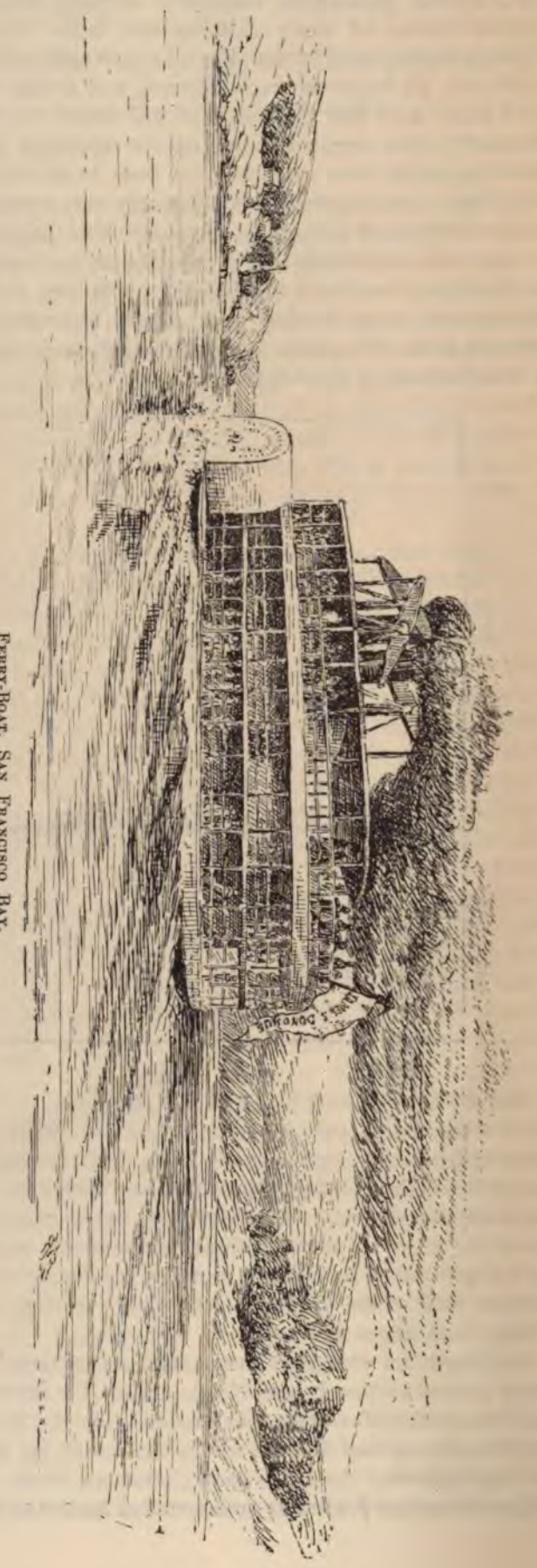
One of the most attractive and frequented resorts in the neighbourhood of the city is Golden Gate Park, an enclosure containing more than a thousand acres laid out with winding roads, graceful trees, brilliant flower-beds and large glass-houses. The luxuriant close-grown turf, and the gorgeous blossoms so lavishly displayed on every side make it difficult to realise that only twelve years ago this beautiful garden was a howling wilderness of sandhills, sparsely clothed with sage-brush, like the rest of the peninsula on which San Francisco—or, at least, the greater part of it—has risen, for the lower range of buildings now fringing the bay occupies ground originally under water.

The first house was built in 1835; in 1848—the year in which gold was discovered—the population was under a thousand, but in two short years it increased to 25,000, and at the time of our visit was estimated at 300,000! The commerce is very large, fed by vast natural products and important manufactures. The site was riginally very hilly, but the ridges of barren sand were levelled, gullies and ravines filled up, hills lowered and valleys raised; all the spare refuse—rock, sand and rubble—was spread on the south-eastern beach, gradually driving back the waters of the bay, and to-day wide paved streets, handsome shops, busy manufactories and huge warehouses occupy the spot where great ships rode at anchor, and fishermen filled their nets—and that as lately as 1846!

From Golden Gate Park a railway runs to Cliff House, a large hotel and restaurant built on the extreme northern point of the peninsula, overlooking the Pacific on the one hand, and the Golden Gates on the other.

Two or three out-lying rocks at the foot of the promontory are called the "Seal Rocks," from the number of these amphibious beasts which resort there. The Government does not allow them to be molested, and at the time of our visit a great many were in sight, swimming round the base of the rocks, climbing their wet and slippery sides, or basking on their summits, looking like huge yellow-brown slugs. We watched these ungainly animals and listened to their hoarse barks and the plaintive yelping of their little ones, till the heavy sea-mist drove us to seek shelter in the "cars," and return to the hotel for dry clothes and dinner.

The "Fire Brigade drill" is one of the most interesting sights in 'Frisco. In a city where wood is so largely employed in buildings and pavements, fires are of frequent occurrence, and the whole system and apparatus



Ferry-Boat, San Francisco Bay.

for saving life and property has been brought to a wonderful pitch of perfection. Entering the station shortly before mid-day, we found the scarlet car and van standing ready—the former fully equipped with hose and buckets, the latter with ladders, ropes and grappling-irons—the harness hangs from the ceiling, suspended by spring-clips exactly over the places of the horses on each side of the pole, collars open at the throat, traces ready buckled to them and hitched to the bars under the drivers' box, the men's red helmets and fire-coats all on their seats. Behind the carriages stand the horses, in open stalls, unhaltered, a light whip hanging from the ceiling over the quarters of each animal. Above each carriage is a trap-door large enough for a man to pass through, with a brightly-polished brass rod for him to slip down, and on one side of the hall is a steep staircase, one half covered with smooth planking also to facilitate descent, while the stairs of the other half are only used for returning to the upper regions when work is done. Going up these stairs we found that the brass rods and trap-doors are just at the foot of the men's beds in the dormitory, while the stairs and slide open into the sitting-room. Noon approached, and the men went to bed, for this was to be a "night-drill"; they were fully dressed except helmets and fire-proof coats, and the upper bed-clothes were connected by a mysterious wire with the ceiling. All was quiet, and we were chatting with the superintendent, when suddenly an electric bell rang in the hall, and a small flap fell showing the name of the street and number of the block in which the fire was supposed to be raging. What followed was so startling, so rapid, and at the same time so complex, that the bell seemed to be the stroke of a magician's wand—the mysterious wires stripped off the bed-clothes, the bedsteads sprang up, shooting the men on to their feet, the trap-doors opened, streams of blue and red uniforms poured down the brass rods, overflowed the carriage seats, bubbled for an instant, and suddenly congealed into quiet, alert, asbestos-coated and red-helmeted firemen—crack went the whips, the horses darted precisely into their appointed places to receive the avalanche of harness which fell lightly on them from the ceiling, a sharp click showing that the collars had fastened properly—the great doors flew apart, the spectators shrank back, and in exactly six seconds from the first warning of the alarm-bell the fire-party was galloping down the street! It was the very acme of human intelligence, equine sagacity and mechanical ingenuity. The only performance I have seen to come anywhere near it is a battery of English Horse Artillery coming into action, and even this is a long way behind.

The civil and obliging superintendent pointed out the excellent automatic brake which is brought to bear upon the front wheels of the carriages by the weight of the horses hanging back on the pole-straps as their speed is checked, the straps act on a lever passing under the pole to the brake. The training of the horses occupies from six to ten months, according to their temper and intelligence; when perfect they are as keen as the men themselves—very high praise, for the American fire-men are devoted to their profession, though at this particular station, as I know, and at others as I believe, they have no relief, and their work is often terribly hard.

The tram-cars are another noteworthy institution. They are drawn by endless wire cables placed below the level of the street and worked by powerful stationary engines; they traverse the city in every direction, running up and down the steep inclines like huge insects. The long straight streets generally intersect each other at right angles, dividing the buildings into blocks, and you are directed to a house by being told that it is "three blocks down Kearney," or "corner of Market and Montgomery," or "on California, one block off Buchanan," the word "street" being systematically omitted. Market Street is the principal thoroughfare, and is the only one which departs from the rectangular rule, running slantingly through the city, like Broadway in New York. Plums, apricots, grapes, figs, peaches, melons and strawberries are abundant throughout the year, growing in wild profusion in the interior of the State where the coast-range of hills shelters the land from the searching Pacific breezes, and perennial summer reigns unbroken by a chill, though here in 'Frisco a bitter west wind rises every afternoon, strongly contrasting with the morning heat, and you constantly see the strange sight of people going out before lunch in alpaca coats and muslin dresses which are exchanged for furs and ulsters by 4 P.M.!

San Francisco boasts of possessing the longest street of any city in the world, California Street. At the time of our visit, the highest-numbered house in this lengthy thoroughfare was 3,200, and still more dwellings were being built. At its upper end is "Nob Hill," where many of the leading citizens live in fine granite-built mansions of fanciful design, and many more in houses which *look* as good, but are really only of wood, covered with stone-coloured paint, in which sand has been freely mingled. There are many imposing buildings in the business part of the town, the immense Palace Hotel being the largest; but the Masonic Temple, the Exchange, and Lick House would attract attention in any European city; some of the churches too are very fine.

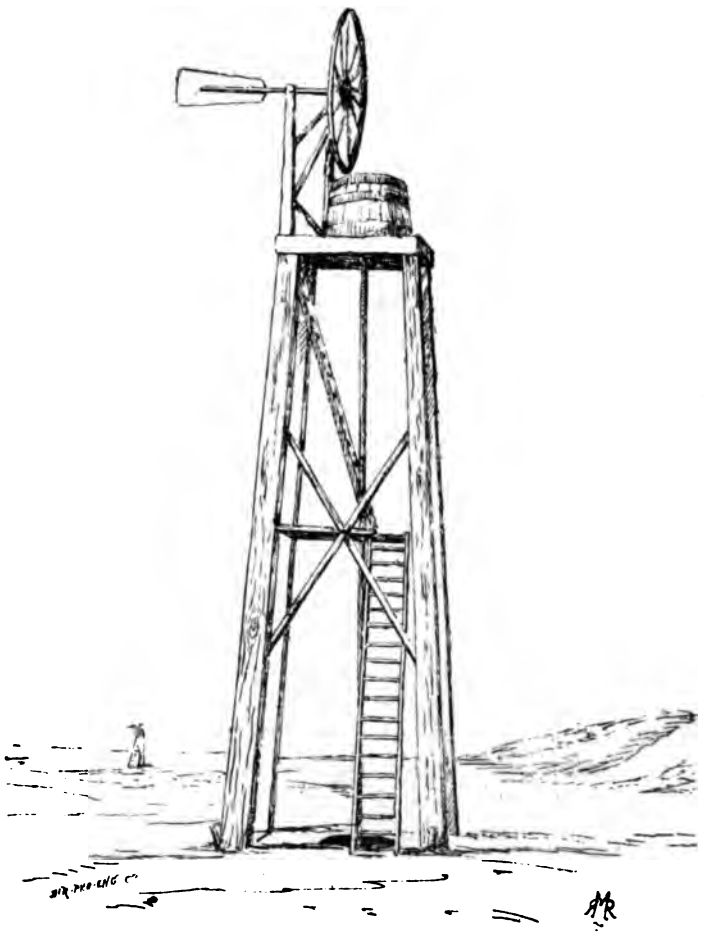
Preparations were everywhere being made for the reception of the "Grand Army of the Republic," that is, those who fought on the side of the North in the great struggle of 1861–66. They hold an annual meeting at one of the great cities, and this year San Francisco and the 3rd of August were the place and date selected. We therefore settled to make an excursion to the far-

famed Valley of the Yosemité and return in time to see the gathering.

Now came another fresh experience: railway tickets are not bought at station booking-offices in America, but are purchased at one of the many agencies scattered through each town; touts from these establishments perpetually pester the passer-by, and each tries to underbid his neighbours, the price of tickets fluctuating as there is a greater or less run upon the line they cover. Then the tickets themselves were novel; not small oblong bits of pasteboard, or books of coupons, such as are issued in England, but long strips of thick paper, headed by the name of the line, and columns filled with the years of the decade, months of the year, and days of the month and week; the strip continues with coupons printed for the consecutive sections of the line. When you buy your ticket the vendor punches the year, month, and day of purchase, you sign your name at the foot of the heading, he tears off the stations beyond the point to which you wish to go, and you pocket the rest, which you are at liberty to use at any time within the year. By-the-bye, before we start, I must warn the reader that a railway is a "rail road," a carriage a "car," a ticket a "cheque," and a station a "depôt" (pronounced "deep-oh"). The engine-drivers hardly ever blow the whistle, but announce the movements of their locomotives by tolling a harsh, clanging bell hanging over the boiler; this is almost continually going, and its perpetual sound is most wearisome. The cars are called "palace" or "drawing-room cars," "day cars" and "sleepers"; they are much longer than ours, have doors at the ends only, and are not divided into compartments, but have a passage down the centre, with sixteen seats for two people on each side; the seats are covered with plush, and have reversible backs, so that you can sit facing the engine or not, as you please; at one end is an iced-water filter, and at the other a stove —the latter generally kept in full blaze by the warmth-loving coloured gentleman who condescends to fill the post of conductor to each separate car. The drawing-room cars have little tables between each part of seats, and movable arm-chairs; the "sleepers" are provided with a gentleman's lavatory at one end, fitted with towels, soap, hair-brushes and a "whisk" for brushing clothes; at the other end of the car is a ladies' dressing-room, and a small cabin for smokers. Two or three dollars extra are charged for these, and from three to five for a berth in a "sleeper." In each train one of the cars is told off as a "smoker," but it does not differ from the other "day cars," nor is it specially marked—except by smell. One of the greatest annoyances experienced in American travelling is the constant passing up and down the train of pedlars hawking books, newspapers, "candies" (*Anglicé*, sweet-stuff, toffee, barley-sugar, and the like), fruit, cigars, and other small wares. They not only push their baskets and trays under your nose, pull your arm, or shake you if you happen to be dozing, and generally disturb and interrupt you at intervals of three minutes or less, but also put books or packets of sweets into your lap and leave them there to be re-collected at their next visit.

As the cars connect by platforms at each end, anyone can walk from one carriage to the other throughout the train.

This seems rather a long preface to our trip, but it will serve as a key-note to all our railway travelling,



A Californian Irrigation-Well

and save explanation in future, so I hope the reader will forgive it.

Leaving the Palace Hotel at half-past three on the afternoon of the 24th July we drove to the Ferry Depôt, and joined the heterogeneous crowd assembled in the waiting-room, all loaded with rugs, overcoats, and "grip-sacks," or hand-bags. As soon as the doors were opened, a rush was made along a passage, up a flight of wooden stairs, and into a large, low room, surrounded by crimson plush-covered settees, mirrors, and pictures hanging on the walls, and with the general air of a public salon in a continental hotel. This was the ferry-boat, though we hardly realised the fact until

we began to move. Twenty minutes took us across the bay to Oaklands, where we found the train waiting—the engine-bell tolling dismally—and took our places, according to the number on our tickets, in the "Berenda Drawing-room and Sleeping Car."

The shores of the bay offered pretty views as we rolled along, especially when Monte Diablo rose in the background; but the inland scene was very unprepossessing—nothing but long stretches of coarse, sun-burnt grass, with wooden shanties few and far between; leggy sheep and gaunt cows, snake-fences, and Californian water wheels.

At dusk the car was brilliantly lighted by lamps down the middle of the roof. We dined in the refreshment room at Lathrop Junction, where we had very bad food, terminus. Breakfast was served in a very rough tent —the only visible sign of railway station or human habitation—table equipage and food matched the shelter. At eight we started in a coach, or *char à banc*, with four benches to hold three passengers each, a canvas hood, and thick, clumsy, unyielding springs.

The first part of our drive was hot, dusty, and uninteresting; the country looked burnt up and barren, though we heard that just after the rainy season a botanist collected three thousand different plants from one square yard of ground close to Raymond. We drove many dreary, hot, jolting miles through the rocky, undulating district, the dead yellow of the grass more closely hidden by green bushes and scattered trees as we gradually ascended the foot-slopes of the Sierras.



Miner's Log Hut, on the Yesomite Trail.

and a scramble to get it, and at 10 P.M. called our conductor to make our beds. He first pulled down an upper berth, from which he produced mattresses, blankets, sheets, and pillows; then went through a conjuring process, folding down the backs of our seats, pulling them together, and forming a wide couch, on which he made the lower bed; hooked damask curtains to a brass rod near the roof, hung to the same rod a strip of crimson velvet bearing the number of our "section" (*i.e.* double berth), embroidered in gold thread, and, behold! in five minutes from giving the order our bedroom was ready. We reached Berenda, 200 miles from San Francisco, about midnight; the car was shunted on to a siding till daylight, and at seven o'clock we rose and dressed in the car at the Raymond

Parties of gold-miners had pitched their camps, and burrowed into the quartz rocks here and there, apparently selecting the ugliest spots they could find, and designating them by equally ugly names, of which "Grub Gulch" may serve as a specimen. At "Grant's Station" we stopped to wash off some of the dreadful dust, and to eat, having done twenty-two miles in six hours. From Grant's the ascent became steeper, through pine-woods, where the heat was less, but the dust worse than ever; then a sharp descent took us into a small valley, where we stopped at "Clark's Big Tree Station" at the junction of the Yosemité and Mariposa roads, or "trails," as the rough tracks in these parts are always called. The food, accommodation, and attendance at Clark's were all of the worst description, and

we were glad to leave at eight o'clock next morning, after being kept awake since three by noisy neighbours.

The road again ascended through thick pine-forests; fine hill scenery rose on our right, while on the other hand lay long winding valleys, carrying the eye to the hazy line of the coast range, dimly visible on the far horizon. We changed horses at thirteen miles, and then crossed the watershed at the highest point of the track, called "Summit"—6,600 feet above the sea.

Descending through the forest we reached "Inspiration Point," and pulled up to enjoy the view. The Yosemité Valley lay before us; mammoth crags walled in a narrow chasm, or rather ravine, carpeted with green woods and verdant meadows, through which flowed a bright silver river, the Merced. The walls of this wondrous ravine rose on either hand, sheer cliffs of massive granite 3,000 feet in height, with many a peak and pinnacle shooting higher still into the clear mountain air. The bed of the valley itself is 4,400 feet above sea-level, and the only point at which its mighty rampart opens is at the south-western extremity, whence the Merced issues through a narrow gorge. The grand outline of the cliffs adds to the effect produced by their stupendous size. They appear to rise perpendicularly from the valley, and in some places are actually so nearly vertical that they seem to overhang. One huge crag, looking like a Titan's helmet cleft in twain, and called the Half Dome, is, perhaps, the most striking of these wondrous masses, but many others are almost equally imposing, especially the precipitous face of El Capitan, a bare wall of glistening granite, rising without flaw and without a trace of vegetation, 3,300 feet above the green pastures at its base, while facing it on the opposite side of the valley, are the beautiful Cathedral Spires, twin points of rock jutting out from the main wall, nearly 3,000 feet high.

But the charm of the Yosemité does not consist only in mighty cliffs torn into strange shapes by the convulsions of primeval earthquakes, or polished by the passage of long-melted glaciers; magnificent cascades pour over the sharp edge of the precipice in a thousand graceful curves and shimmering sheets, now crashing down in great continuous streams, now shooting from the airy heights in jets like falling rockets, looking sharp, white, and *solid* as they leap over the edge of the precipice, to break into a million flashing diamonds on some projecting rock, or gradually melt into gauze-like mist as they plunge through the quivering air. One of the most beautiful of these minor falls is the Bridal Veil, which is wafted backwards and forwards by the breeze—now a perpendicular sweep of the purest snow-white satin, now a twisted fold of muslin, and now, again, a gently-swaying veil of finest lace. The grandest of the larger cataracts is the Nevada Fall, where the main stream of the Merced plunges into the valley in one great wall of water 600 feet in height.

Of the many strange facts with which the Yosemité abounds, none is more striking than that it was first seen by white men so lately as May 1851, when a party of States' soldiery entered it in pursuit of a band of Indians. The name, which signifies "Great Grizzly Bear" in the Indian language, was given by a chief, who was going unarmed to bathe in Mirror Lake, when he met a "grizzly," which he attacked and killed with the branch of a tree. The Indians always regarded the valley as sacred ground, the favourite resort of the Great Spirit, and carefully concealed its existence from the whites, who only discovered it by accident, as above narrated.

Where the mountain-sides afford soil and root-hold they are clothed with pines, cedars, silver firs, and, more frequently than all else, with *manzanita*, a low, thorny bush with prickly red stems, covered with wax-like leaves, and bearing a small berry used by hunters as an astringent. The lower slopes produce oleanders, syringas, alder, black and holm oak, and another bush with medicinal properties, called "Balm of Gilead." The floor of the valley is full of orchards, wheat-fields, farms, and rich pasture. Acorns form the staple food of the few wretched-looking Piute Indians who survive the encroachment of the whites; they are stored in "caches," formed of baskets, packed round the stems of pine-trees and roofed in with leaves, and are prepared for eating by being ground between stones, the flour mixed with water and baked by dropping hot stones into it. This is the ordinary food of the aborigines; on fête-days they regale themselves with a *bonne bouche* of fried grasshoppers.

The valley contains a tiny church, three hotels, a farrier's forge, and a photographer's shop, besides two or three settlers' cabins. We went to "Barnard's," a clean and comfortable inn of wood, like all the other buildings, and overlooking the pellucid river, here about forty yards wide. In full view of our windows the Yosemité fall shone white against its rocky background, making three grand leaps from the summit of the crag to the valley, the first and greatest being 1,600 feet. The fresh balmy air was delightful as we sat in our verandah lazily watching the fall, or looking at the few people who passed, generally riding weedy ponies in high-peaked Mexican saddles. In front of the hotel was one of the typical Californian pumps, worked by a small windmill raised high in air on a light scaffolding; also a building, called "Big Tree Parlour," because it was built round the living trunk of a giant pine-tree, thirty feet in circumference.

We found the walk to Mirror Lake was a pleasant stroll through forest and pasture; many parties were camping out in the woods, with small tents and large

waggons. The lake itself was disappointing, and quite undeserving of the large amount of tall talk and extravagant writing so freely expended on it; but I must confess it was our only disappointment in the valley, started, directly after breakfast, to visit the Vernal and Nevada Falls. We were mounted on animals of sorts; my steed was a very small mule, which proved to be one of the best of the lot, and the men had



Cathedral Spires, Yosemite Valley. (2,600 feet.)

and this was amply compensated for by the way in which all the rest of the scenery surpassed our expectations. The prettiest thing about Mirror Lake is its poetical Indian name, *Kekotooyem*—"Sleeping Water."

Morning broke fresh, clear, and beautiful, and we Mexican saddles with a great deal of bear-skin, brass studs, loose thongs, and leather flaps about them, but not uncomfortable, while the lady of our party rode in a very fair English-pattern side-saddle.

The Merced showed lovely reflections of cliff, fall and

trees, its rocks looking white, grey, or black, as sun or shadow fell on them; the tall pines shot up into the sky, making us feel like very pigmies, to be dwarfed in their turn by the giant peaks which seemed to overhang the valley with their crests, and over all stretched the bright cloudless sky of the Californian summer. The valley from this point appears to be an enclosed basin, or rugged well with abrupt and precipitous sides, like a huge crevasse in a mighty glacier of granite.

We soon left the pretty winding river and turned off the main road; a narrow, stony track led steeply up the bank of a ravine clothed with peppermint-bushes (a sort of bay, very aromatic) and elder-trees, the latter in flower.

The ravine was crossed by a log-bridge, from which we saw the Vernal Fall, a sheet of foaming water dashing over a perpendicular cliff three hundred and fifty feet high. We then rejoined the Merced—here a seething, turbulent torrent—very different from the placid murmuring stream we had left in the valley below. Even here are signs of the irrepressible "'Arry," for a limestone rock on the right of the path is covered with



Nevada Fall, Yosemite Valley.

scribbled names, doggrel rhymes, and other vulgarities. Our guide told us of a parson having inscribed his name here, and on re-visiting the valley with his bride the following year he took her to see it; imagine his horror on finding that someone had put this couplet underneath—

> Fools' names and beauties' faces
> Are always found in public places!

Soon after passing the Vernal Fall we came in sight of the grand Nevada cascade, where the river dashes over a sharp ledge at the foot of the bare round crag called the "Cap of Liberty," and breaking with a deep roar—audible for many miles—on the sharp black rocks seven hundred feet below, rushes forward foam-flecked and turbid to sweep down the steep incline of the Diamond Race, and precipitate itself from the summit of the Vernal Fall into the peaceful valley, where—tired and languid—it flows gently on, lulled by the sweetness of the flowers and the gentle murmur of the pines.

We had luncheon in a log hut, rejoicing in the name of "Snow's Hotel," and our guide joined us, apologizing for sitting down in his shirt-sleeves in the presence of a lady. He behaved like a gentleman, and spoke like a scholar, except for the dreadful nasal twang!

On our return we left the main trail, and went down by a footpath to the head of the Vernal Fall, where we looked over and saw the waters committing perpetual suicide, any inclination of our own in that direction being checked by a natural breastwork of sandstone, four feet high and two feet thick, as even and almost as straight as could be hewn by a stone-mason.

Our animals had taken the opportunity to snatch a hasty dessert from the juicy but rough-tasting manzanita leaves, and now bore us bravely down the long zigzags of the descent, and through the valley to the hotel. After sunset the air was wonderfully transparent, the summits of the cliffs standing out in pale, fairy-like rose-tints against the deep-blue of the cloudless æther.

We started at half-past seven next morning for Glacier Point and Sentinel Dome, the most celebrated point of view in the whole neighbourhood. The same animals were brought for us, but our pleasant, well-informed guide of the previous day was replaced by a red-nosed, husky-voiced old man, who looked more like a Mexican "greaser" than anything else. A charming ride through the valley led us past the little wooden church, where we turned off the carriage track—I cannot honestly call it a road—and commenced another zigzag climb up the face of the mountain wall, which eventually brought us to Glacier Point, 3,257 feet above the valley. A ledge of dark rock juts boldly from the main line of the cliffs, and when you stand at its extreme verge you seem to be floating above the pine-forest dwarfed into a mere shrubbery far beneath. The cliff is so precipitous here that a stone held at arm's length and dropped from the Point does not touch till it strikes the débris or "talus" more than a thousand yards below. The platform at the end is guarded by a strong iron railing, said to have been erected because a too polite individual fell over while in the act of taking off his hat to some ladies; he was smashed to pieces, and the State experienced some difficulty in finding the fragments to return to his widow, who threatened legal proceedings if she did not receive all of them. The story goes on to say that she returned the following year with a new husband, who absolutely refused to go on to the platform, though he offered no objection to her doing so.

From Glacier Point we continued our ride to Sentinel Dome; a bare, weatherworn, rounded mass of granite, with one solitary stunted pine growing in a fissure (like the last hair on a bald pate); gnarled and bent by the tempest, its knots and twists stand out like muscles strained to their utmost by the struggle to maintain foot-hold on this bleak, slippery plateau.

It was a clear day, and the magnificent panorama could be seen in all its grandeur of extent and variety of detail. The highest range of the Sierra Nevada stretched its mighty snow-clad spine athwart the bright blue sky to the east and south, a light gauzy veil of wind-driven snow resting on the peak of Mount Whitney, the "Monarch of the Sierras," 15,000 feet above the sea. Glaciers glistened in the sun, and great snow-fields stretched their dazzling expanse between the jagged points which bit into the sky; the whole country in this direction was desolate, hard and barren, though there still hung over it a strange, weird attraction, compelling admiration without exciting affection. From the other side of the Dome you look down on a widely different scene. The huge Half Dome appears to be below instead of—as it really is—seven hundred feet above you; the great curves of the Royal Arches, the silver ribbon of the Yosemité Fall, the placid sheet of Mirror Lake and glistening ripples of the winding Merced seem to lie within a stone's throw; green pastures and dark pine-forests contrast strongly with bare grey crags and sheets of naked rock from which the sun-light is refracted with an almost painful glare.

We stayed long on the Dome, drinking in the panorama, and inhaling the delicious mountain air, which often brought the roar of the great Nevada Fall on its balmy wings, sounding like the noise of an approaching train, and making the air tremble, though nearly three miles distant as the crow flies.

This view gave us a much better idea of the majestic size of the granite crags than can ever be attained by seeing them only from the valley; looking up from below, you think the summit of the Yosemité Fall or of the Cathedal spires is unsurpassed by any other heights in the neighbourhood, but from the Sentinel Dome you look down on these, and they scarcely appear to be much above the level of the valley.



The Half-Dome & Sierras,
from Glacier Point.

Certainly the grandest and most satisfying object is the great Half Dome, which rises 9,000 feet above the sea; the side facing the valley—that from which half seems to have been split—is a sheer precipice 5,000 feet in depth, looking as though the vast mass had been cleft in twain by some mighty stroke, and one-half carried bodily away. This cliff fairly merits the epithet "stupendous," and its awful but never-tiring majesty grows on the beholder day by day and hour by hour.



In the pine-forest between Sentinel Dome and Glacier Point we gathered blue and pink larkspur, scarlet starwort, and the white flower which Somersetshire folk call "love-in-a-puzzle"; the little mule brought me gallantly down the sixty zig-zags of the winding path (I am sure of the number, though one of our party did accuse me of halving the total by counting only the "zigs" and omitting the "zags") and at the foot of the descent we passed a party of Piute Indians—a miserable looking lot—with lank, greasy hair, high cheek-bones and skinny figures; the men were dressed in dirty ragged old waistcoats and trousers, and battered wide-awake hats, the women in equally ragged and still dirtier jackets and petticoats, with handkerchiefs over their heads, and their hair "banged," and all were about as far removed from Fenimore Cooper's ideal picture of the "noble savage" as a chimney-sweep from a smart sergeant of dragoons.

Aftter a stay in the valley of four days, which we

should have liked to prolong to as many weeks, we returned to Clark's unattractive inn, and started the same afternoon with a party of nine others in the usual four-benched shandridan, called a "coach" in these parts, to see the famous Mariposa Grove of Big Trees. A drive, even unusually jolting and dusty, took us through a magnificent forest of pines, each unit of which would command admiration in Europe; these great trees increased in size as we advanced, the stems of some being much redder than usual—a deep rich cinnamon tint, gleaming crimson where struck by the sunlight, their bark deeply scarred, and their crests storm-torn and shattered. We were admiring these pillars of the forest when suddenly we came upon a sight which wrung an exclamation of astonishment from everyone, for here was indeed a giant, fully forty-five feet in circumference. This was rapidly succeeded by other and greater monsters—hardly trees so much as towers of timber—and we beheld the real "Big Trees," the "Sequoia Gigantea" of the botanist.

We seldom saw more than five standing together in a group amongst a crowd of other pines, like Anakim surrounded by ordinary men, looming vast and lurid through the stately aisles of nature's grand cathedral. At length we reached the Grizzly Giant, a huge mass ninety-four feet in circumference, rising in an unbroken column for two hundred feet, where the first branch—six feet thick—shoots out from the parent stem. The Giant, like all his great brethren, has suffered much ill-treatment from nature and from man; snow and storms have rent and shattered his crest and upper branches, lightning has scathed his massive trunk, Indians have lighted fires at his feet—scorching, blackening and disembowelling his mighty body at its hugest girth—and white men have added their disfiguring mosquito-stings by carving vulgar names and silly doggrel rhymes wherever their mischievous hands could reach. Many of the other great trees are hollow, like the Giant, and contain caves as large as a bell-tent for sixteen men. Continuing our course we came to another tree called "Wawona," or "Big Tree," *through* which the road passes, an archway ten feet high and nine feet wide having been cut in the *living* wood. Stopping the coach in the middle of the tunnel, we could just touch the roof with our finger tips, the conveyance with its twelve passengers and two pairs of horses was entirely concealed by the thickness of the trunk, and above our heads towered a leaf-crowned column two hundred and fifty feet in height, and still seven feet in diameter (the size of a large forest tree), where it ended in shattered splinters.

A great charm about these immense trees is that custom does not stale their grand effect, each as it was passed elicited fresh exclamations of wonder and surprise, and, while awed by the majesty of the hoary monarchs who raise their scarred heads proudly to the skies, we were astounded by the vastness of girth and the immense length of those which lie prone in fallen grandeur—some felled by the slow decay of centuries, or the devastating hand of man—others uprooted in their mightiest strength by the irresistible breath of the more mighty tempest.

The forest was very silent and lifeless, scarcely a bird was to be seen, though the pine-trunks were everywhere honey-combed by the bullet-like holes made by the wood-pecker to hold his winter store of acorns. Not even a squirrel was visible, and, except our party, not a human being until we came to a small hut in the depths of the forest, tenanted by a hermit of the woods who keeps a store of pieces of Big Tree wood and bark, moss, photographs, &c. for sale to visitors. When freshly cut the bark resembles very close coir matting of a dull red colour, as light as cork, and from eighteen to twenty inches thick; the wood is the same colour as the bark, and the peculiar moss—locally known as "old man's beard," long strips of pale, yellow-grey lichen—hangs from the great trunks in wreaths and festoons waving gently in the breeze, like the banners of departed warriors in a vast cathedral aisle. There is little undergrowth, the friable soil apparently expending all its resources in nourishing the giant sequoias and their satellites.

Our team rattled us down the hill and bounded along the dusty road bringing us back to Clark's eminently uncomfortable inn by sunset, and at a quarter to three in the morning (or rather at night!) we were roused to prepare for the onward journey, which we commenced by coach in the dim twilight of early dawn, reaching the booth at Raymond Terminus in time to "get aboard" the cars. We were very glad to change our mode of conveyance, but continued our journey with many a backward glance of regret at leaving the beautiful and wonderful Valley of the Yosemité.

We joined the main line at Berenda, where a dense and heterogeneous crowd thronged the cars, *en route* from the east to take part in the twentieth annual meeting of the Great Army of the Republic; in addition to the usual pedlars with candies, books, &c. we were now troubled by hawkers of "Grand Army" badges, consisting of a five-pointed gilt star suspended by a red, white and blue ribbon from a gilt brooch in the form of a bear—the Californian emblem. A printed notice was posted in the cars, which read as follows: "Passengers are warned not to play 3 card monte, strap, or other games with strangers; YOU WILL SURELY BE ROBBED IF YOU DO."

The heat was very trying (106°), but the dust and smuts were even worse.

We arrived at San Francisco about ten at night, two hours behind time, and did not get our luggage until the

following afternoon, owing to a hitch in the "check system," an American institution which we found most inconvenient on this and subsequent occasions. Morning light revealed the city in gala dress, festoons of flags bedecked every wall and hoarding. The colours employed were red, white and blue only, and all foreign flags were rigidly excluded, though the tricolour certainly looked very French! However, we were assured that it



THE SWIMMING-BATH, MONTEREY.

and streamers hung from the windows and across the streets, gay canopies and draperies adorned the shops, banners floated from every gable, while standards and shields bearing mottoes and greetings to the "G.A.R." was originally and exclusively American, and that the French had stolen it from the Great Republic, just as the English annexed the tunes of "America" and "Columbia"—called then respectively "God Save the

Queen" and "The Red and the Blue"—and asserted that the latter had been sung during the Crimean War, when everybody (at least every American body) knows that the tune was invented during the Civil War! One certainly learns strange facts in the States, or, at least, hears new versions of old stories!

The gaily-decorated streets were densely crowded with parties of holiday-makers, sometimes forming processions in semi-military order, with bands and flags, but more frequently strolling along independently—sometimes in an attempt at uniform, but oftener in mufti. All wore the gilt "G.A.R." badge and bear-brooch, and were generally adorned with a broad ribbon—blue, red, yellow, green, or white—embroidered with the name and emblem of the State from which the wearer came. Those from Maine bore the acorn, the people of Florida were known by the orange, Massachusetts displayed the bean, and Nevada the fir-cone. Some of the bands were very gaily dressed in red or blue coats, French grey or red trowsers, and laced caps or plumed helmets. One or other of these bands played in the hotel courtyard three or four times a day, and the marble-paved enclosure was always well-filled with people, lounging in rocking chairs or strolling through the corridors. Here, as well as in the streets, the crowds were most orderly and good-tempered, and I never saw anything disagreeable—still less disgraceful—during the whole week of the meeting, though I was frequently out late at night, walking back from the theatre, and mingled freely with the crowd at all times. Of course the expectoration was disgusting and incessant, but it is a national habit, indulged in at all times and in all places, and seems as necessary to the untravelled American as breathing or sleeping. Further reference to this practice will be avoided, out of regard for the reader's feelings, but it frequently destroyed our pleasure and took away our appetites.

The great day for the parade was the 3rd of August: 1,585 guests slept in the Palace Hotel the previous night. From early dawn officers and orderlies had been clattering through the streets, the former generally mounted on hacks hired for the day, with Mexican saddles and the huge flaps, or "kips," over the stirrups, previously described. The streets were cleared at 10 o'clock, and the hitherto incessant tramcars stopped, by a regiment in Zouave uniform—red fez and knicker-bockers, white jackets, blue waistcoats, and tanned gaiters. General Sherman, who had come to command the parade, drove up to the hotel, and waited there till it was time to take up his position at the saluting point in Market Street. His striking face, with its keen eye, big nose, white hair and moustache, and close clipped beard, surmounted by a black slouch hat with gold cord and tags, made the hero of the great march to the sea easily recognizable.

At 11 the march-past commenced; a body of regular troops headed the procession, and then came a stream of humanity—some in uniform, some in mufti, some with bands, some without—but all carrying little American flags and wearing badges. As they passed the General's carriage, the bands struck up "Marching through Georgia," the regular troops carried arms, the veterans cheered and waved their flags, Sherman took off his hat and bowed, and the crowded populace, on pavement, balcony, and housetop, shouted vigorously. It really was a very grand sight. I asked what the Southerners thought of it? The reply was: "Oh, they don't mind! They have their own 'Grand Army Meeting,' and we don't interfere!"

After dinner there was some good choral singing in the courtyard; and then we all hastened to our windows again to see the torchlight procession. This was the prettiest and most effective part of the proceedings. First came a large waggon, drawn by twelve horses, and full of demons with horns and tails, who burnt lurid red fire in cressets round a huge blazing cauldron in the centre. Next came a body of several hundred men, dressed in scarlet doublets and white hose, carrying torches, which were made to flash up brilliantly whenever a bugle sounded the signal. These torch-bearers wheeled and counter-marched incessantly, often opening out and lining the streets, while troops and veterans marched between them. Then came more waggons, from which rockets and Roman candles were let off, and then a dense, choking smoke, which closed the procession and our windows at the same time.

A day was devoted to visiting some English friends, who had established a ranche, or farm, in Sonoma Valley, north of San Francisco Bay. We crossed in a ferry steamer, with the usual gorgeous fittings—the paddles driven by a "walking beam" far above the highest deck—landed at Sonoma Landing, and "took the cars" to Pioneer Grove Station. The line ran through richly-cultivated land, principally vineyards, but with a goodly sprinkling of wheat, maize, and barley fields, apple orchards, orange groves, and olive trees. Our friends' house was a wooden bungalow standing under a wide-spreading peppermint tree. It was full of English comforts and American contrivances; connected with the kitchen and servants' quarters by a long boarded and trellised passage covered with creepers, and had a yard at the back, with stables, coach-house, and barn. This was a "grape ranche," and we were soon wandering through the vineyards, where thousands of stakes, three and a half feet high, each supported a vine already bending under the weight of its fruit, though the grapes were as yet only half-formed. The harvest season is mid-August, when the bunches sometimes weigh as much as seven pounds, and are so abundant that horses and pigs are fed on the luscious fruit. The soil is very rich, though exceedingly

light and friable; it must be ploughed and harrowed six times over before the vines can be planted, and then they require great care; sulphur is burnt to windward to keep off the "fly"; large fires are lighted, and kept blazing day and night when the temperature falls below a certain point, which is announced by the ringing of an electric bell at the head of the master's bed, connected by a wire with a thermometer placed in the centre of the vineyard; and, finally, great care is necessary in pressing the grapes and managing the wine-vats. Many Germans from the banks of the Rhine and Moselle bring their home-experience into play here.

Plenty of shooting is obtained in the neighbouring hills; hares, rabbits, and quails abound, deer are fairly



Cypress Point and Carmel Bay.

numerous, and bears are sometimes met with; the quails are much larger than their European or Indian namesakes, being nearly as big as a francolin, or grey partridge.

Californian horses are generally well trained and fairly well bred, but the Mexican mustang is a vicious beast—tricky and unreliable. The heavy (16 lb.) Mexican saddle, covered with thick-stamped leather, is in general use; from the high pummel—called the "horn"—hangs the "riata," or lasso; the girth is quite 10 inches wide, formed of a dozen plaits of horse-hair, kept even (like a raw-hide girth) by cross-pieces of stiff-leather, and has an iron ring at each end; these are connected with corresponding rings on the saddle by four or five turns of a leather thong, called a "sinch," with which the girth can be cruelly tightened. I should think this is the cause of most of the wild "bucking," for which Texan and Mexican horses have gained an evil notoriety. The back of the saddle has various rings for crupper, valise, and saddle-bags; very wide stirrup-leathers, with a flap going under the leg, hold the wooden stirrups, and replace the skirt of our saddles, which is absent altogether; great leather "kips" cover the foot; a drugget saddle-cloth, lined with lambskin, a broad breast-plate, a highly ornamented bridle, and a fearful bit, with a high barbed port, complete the equipment of the "ranchero's" steed. The climate of California, inside the coast range, is dry, warm, and very equable, seldom varying ten degrees throughout the year, night and day; it is, therefore, wonderfully good for most diseases of the throat and lungs—a marked contrast to the trying changes of the San Francisco daily temperature. Food is very cheap, beef being usually 10 cents, and mutton 7 cents a pound (a cent is a half-penny), but clothes, especially boots, are extravagantly dear, and wages exorbitant. While we were there the masons struck for six dollars a day instead of five, which they had hitherto received—fancy a bricklayer demanding twenty-five shillings a day, and this in addition to food and lodging found by the employer. No wonder Chinese workmen are appreciated by all but the "hoodlums"!

Before leaving the Far West we paid a visit to its fashionable watering-place—Monterey. The line of rail passes through wide pasture-lands, now burnt and yellow as ripe barley-fields, covered with dry, crackling

grass, coarse, but sweet and nourishing. In spring, just after the rainy season, this parched expanse is a vivid green bedecked with many flowers. Ranges of rugged bare hills rise on the east, above which Monte Diablo rears its head. Passing the town of San José, where a side line branches off to Santa Cruz, we swept round sharp curves, past long lines of blue gum trees, and through cuttings in low sand-hills to the little station of El Monte, whence a drive of two minutes took us to the Hotel del Monte, a pretty, many-gabled building, standing in the midst of beautiful, semi-tropical gardens, where the scent of orange-flower and heliotrope mingled with the salt breath of the neighbouring ocean, and the wash of the surf lost itself in the murmur of the pines.

The broad verandah of the hotel contained the usual crowd of rocking-chairs, generally well filled, while the tennis-courts, bowling-alley, swings, and "merry-go-rounds," were occupied from early morn to dewy eve by the younger members of the holiday community; but the great resort and attraction was the bathing-house, about half a mile from the hotel by a path along the beach. The interior was divided—one portion being reserved for ladies only, and the other open to both sexes—and ornamented with tropical palms, tree-ferns, and orchids. The chief amusement seemed to consist in sliding head first down an inclined plane from a high scaffold, and making as big a splash as possible in the water beneath. The bathing-dresses were generally of dark blue serge, though some were remarkable enough to have attracted attention at Trouville or Biarritz.

The principal excursion from Monterey is a drive through the forest and along the coast to Cypress Point, where the gnarled and twisted trunks of ancient cypress trees show signs of the tempests which sometimes rage across the Pacific. The extreme end of the cape is bare of wood, but covered with echeverias and other stone-crops; seals frequent the outlying rocks, and though we did not see them, we heard their hoarse bark and plaintive yelp. The cypresses at the Point, and almost all the trees on the Californian coast, grow with a strong inclination to the south, which gives a peculiar sloping look to the whole landscape when viewed from east or west; this is due to the prevalence of north winds. Beynd Cypress Point lie Carmel Bay, with its ruins of the old Spanish Church and Carmelite Mission, and Point Lobos, where Don Sebastian Vizcayno was nearly wrecked in December 1602; he got clear of the dangerous rocks with much difficulty, and landed a few days afterwards with two priests and a few soldiers in a sheltered bay to the north, which he took possession of in the name of Philip III. of Spain, and named after the Conde del Monterey, governor of Mexico.

After a few days of quiet enjoyment at pretty Monterey we returned to San Francisco to prepare for our long railway journey across the continent to New York.

Since these notes were penned news has arrived of the complete destruction of the beautiful Hotel del Monte by fire. Many of the guests had narrow escapes, and another item is added to the long list of conflagrations for which California is so notorious.

(To be continued.)

NAVAL AND MILITARY NOTES AND QUERIES.

NATIONALITIES of the N.C. Officers and men serving at home on January 1, 1887, showing the several arms of the Service:—

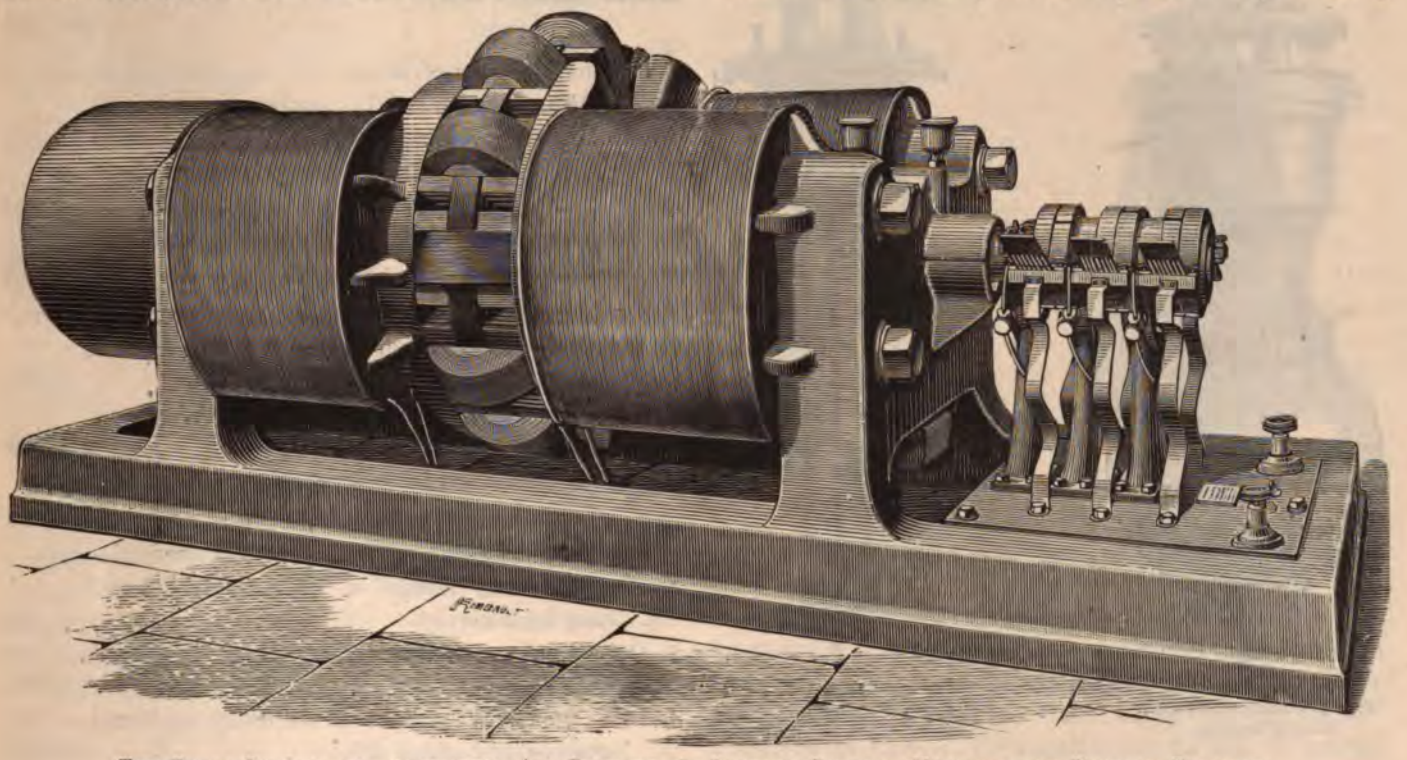
Household Cavalry.—955 English, 182 Scotch, 177 Irish, 13 born in India or the Colonies, 1 foreigner; total, 1,228. Cavalry of the Line.—8,845 English, 855 Scotch, 1,026 Irish, 80 born in India or the Colonies, 4 foreigners, 29 not reported; total, 10,839. Royal Artillery.—11,965 English, 1,081 Scotch, 2,732 Irish, 290 born in India or the Colonies, 22 foreigners, 29 not reported; total, 16,119. Royal Engineers.—3,175 English, 279 Scotch, 417 Irish, 82 born in India or the Colonies, 6 foreigners; total, 3,959. Foot Guards.—4,579 English, 685 Scotch, 310 Irish, 37 born in India or the Colonies, 6 foreigners; total, 5,617. Infantry of the Line.—39,302 English, 5,205 Scotch, 9,945 Irish, 546 born in India or the Colonies, 28 foreigners, 416 not reported; total, 55,442. Commissariat and Transport Corps.—2,161 English, 93 Scotch, 207 Irish, 32 born in India or the Colonies; total 2,498. Ordnance Store Corps.—348 English, 16 Scotch, 17 Irish, 10 born in India or the Colonies; total, 391. Corps of Ordnance Artificers.—25 English, 1 Scotch, 2 Irish; total, 28. Medical Staff Corps.—1,487 English, 132 Scotch, 336 Irish, 25 born in India or the Colonies, 5 foreigners; total, 1,985. Grand total.—72,842 English, 8,529 Scotch, 15,069 Irish, 72 born in India or the Colonies, 474 not reported; total, 98,101.

R. O'BYRNE.

ELECTRIC LIGHTING OF FORTIFICATIONS, BARRACKS AND HOSPITALS.

By MAJOR-GENERAL E. MITCHELL, R.E.

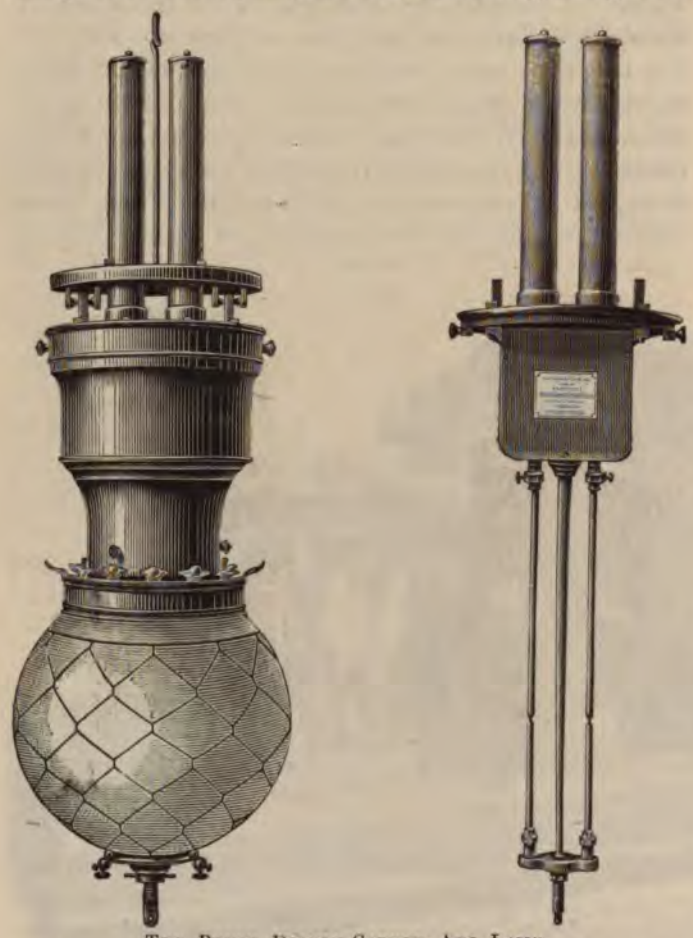
THE recent introduction by Lord Thurlow in the House of Lords of a Bill to amend the provisions of Electric lighting in the United Kingdom, and the instructive and forcible remarks of Lord Salisbury in favour of the measure, seem, I think, to bring the subject of Electric lighting so greatly to the front that some remarks may be acceptable to the readers of this magazine. The gradual progress of this system of lighting, more particularly in America, Australia, and South Africa, also at the recent exhibitions of South Kensington, Manchester, and Liverpool; its introduction into the Athenæum, Conservative, and other Clubs, also the Savoy Theatre in London, indicate, I think, that the policy of repression of the Electric light requires reversal, and that a policy of expansion may be the one of no distant date, now a Conservative Government is in office.



THE BRUSH DYNAMO, FOR GENERATING ARC LIGHTING OF BARRACK SQUARES, HOSPITAL, AND BARRACK PASSAGES.

Lord Armstrong, the Duke of Sutherland, and other distinguished men, have already introduced the Electric light into their houses and grounds. The subject as regards the lighting of barracks, fortifications, and military hospitals aptly comes forward after the recent gas explosion at Cambridge Barracks, Portsmouth, which unfortunately killed and wounded a good many soldiers. Whether any one is to blame or not in the matter, is beside the question. I do think that if Cambridge Barracks had been lighted up with the Electric light many valuable lives and much public money would have been saved. About 1880, when division officer, R.E., at Portsmouth, certain special electrical experiments were carried on at Portsmouth Dockyard by orders from the Admiralty; their object was to determine the practicability and utility of fixing at the mast-heads of Her Majesty's men-of-war and troopships certain powerful Electric "search lights" to illuminate the ocean during or immediately after a storm, so that vessels or boats in distress could see or be seen by ships of war. I was officially detailed to attend the experiments and to report upon them for the information of the War Office. The results were so generally satisfactory, that after studying some of the special details of Electric lighting, I officially recommended that the following barracks at Portsmouth, namely, Anglesea, Clarence, the Royal Artillery, and

Cambridge, also the Military Hospital should be lighted up with the Electric light, and the Anglo Brush Light Company gave an estimate of the cost of carrying out my proposals. Speaking now from memory, it was, I think, £500 *less* than the Government were then paying annually for the wretched illuminating gas that is sparsely scattered through these barracks and hospital. Prince Edward of Saxe-Weimar, Lieutenant-Governor and Commanding the Forces at Portsmouth, was pleased to recommend my project for approval, but the War Office rejected it. It was true, I believe, that it would have saved the public £500 a year, and substituted a good light for



THE BRUSH DOUBLE-CARBON ARC LAMP.

Fig. I.—Lamp complete, as seen burning.

Fig. II.—Lamp showing Pencil Carbons ready for lighting.

a bad one; but as gas is paid for by the Commissariat Department, and Electric lighting would have come under the Royal Engineer Department, and thereby increased the Royal Engineer votes of expenditure, our readers will no doubt fully appreciate the policy by which my project has now been held in abeyance for over six years. As, however, a number of soldiers have now been killed and wounded by the Portsmouth barrack gas explosion, a coroner's inquest has taken place, and a good deal of expense incurred, and also much official correspondence, it is within the bounds of possibility that some steps may be taken in the direction I have indicated, more especially as Maj.-General Webber, C.B., ret R E., has been good enough to contribute a paper on the important subject of electric lighting to a recent number of the R.E. Corps journal.

That gallant officer's position and knowledge and special experience entitle his estimates to be received as accurate, and I therefore, with his permission, reproduce some of them below :—

The estimate of the installations includes the erection and supply of motive power and all that is required for the generation, distribution, and use of the light in groups of glow-lamps—termed " multiple " series. The estimate of working and maintenance includes one skilled attendant, coal, lamp renewals, oil, waste, and sundries.

For installations of about 100 incandescent lamps :—

	£
1. One hundred lamps in buildings scattered over one acre	720
2. One hundred lamps in buildings scattered over two acres	785
3. One hundred lamps in buildings scattered over three acres	830

For installations of about 250 incandescent lamps :—

	£
1. Two hundred and fifty lamps in buildings scattered over two acres	1,717
2. Two hundred and fifty lamps in buildings scattered over four acres	1,880
3. Two hundred and fifty lamps in buildings scattered over six acres	1,992

For installations of about 500 incandescent lamps :—

	£
1. Five hundred lamps in buildings scattered over four acres	2,562
2. Five hundred lamps in buildings scattered over eight acres	2,852
3. Five hundred lamps in buildings scatterd over twelve acres	2,960

For installations of about 1,000 incandescent lamps :—

	£
1. One thousand lamps in buildings scattered over nine acres	5,182
2. One thousand lamps in buildings scattered over eighteen acres	5,758
3. One thousand lamps in buildings scattered over twenty-seven acres	6,015

The Annual Cost of Working and Maintenance.

Installation of 100 lamps :—

	£	s.	d.
Coal, 5 lb. per h.p. per hour = 53 tons, say 60 tons at 16s.	48	0	0
Oil, 52 gallons at 3s. 8d.	9	10	8
Cotton waste, 1 cwt. at 35s.	1	15	0
Lamp renewals (life at 800 hours) 160 at 3s.	24	0	0
Labour, 1 engine driver at 30s.	78	0	0
Repairs, say	10	0	0
	£171	5	8

Installation of 250 lamps:—

	£	s.	d.
Coal, 4 lb. per h.p. per hour=91 tons at 16s.	72	16	0
Oil, 90 gallons . . . . at 3s. 8d.	16	10	0
Cotton waste, 2 cwt. . . . at 35s.	3	10	0
Lamp renewals . . . . 400 at 3s.	60	0	0
Labour, 1 engine driver . . at 30s.	78	0	0
Repairs, say	25	0	0
	£255	16	0

Installation of 500 lamps:—

	£	s.	d.
Coal, 4 lb. per h.p. per hour for 1,280 hours =172 tons . . . . at 16s.	137	12	0
Oil, 170 gallons . . . . at 3s. 8d.	31	3	4
Cotton waste, 3 cwt. . . . at 35s.	5	5	0
Lamp renewals . . . . 800 at 3s.	120	0	0
Labour, 1 engine driver . . at 30s.	78	0	0
Repairs, say	35	0	0
	£407	0	4

Installation of 1,000 lamps:—

	£	s.	d.
Coal, 4 lb. per h.p. per hour=350 tons at 16s.	280	0	0
Oil, 300 gallons . . . . at 3s. 8d.	55	0	0
Cotton waste, 4 cwt. . . . at 35s.	7	0	0
Lamp renewals . . . 1,600 at 3s.	240	0	0
Labour, 1 engine driver . . at 30s.	78	0	0
Repairs, say	60	0	0
	£720	0	0

N.B.—In the above maintenance calculations, 800 hours' life for a lamp is low, and a price is given for lamps when bought in very large quantities.

Electric-light installations put up under the rules and regulations laid down by the Phœnix Fire Office are subject to the ordinary fire-risks premiums. In time we may expect that buildings lighted by electricity will be placed on a specially low rate, thus effecting an additional *annual saving by its use*.

These estimates and figures may, perhaps, aid those who are responsible for the proper lighting of our barrack stables and hospitals and fortifications, in arriving at correct estimates compared with gas. The chain of responsibility under existing regulations may be interesting to some of our readers. The Royal Engineer Department, a scientific one, is responsible for the proper laying of the gas mains and metres, and gas-pipes and fitments, both external and internal throughout our military buildings, the Commissariat Department, a non-scientific branch, is responsible for a due expenditure of gas, and for its payment, and the rather difficult task of taking constant readings of the gas metres. As this reading usually, I believe, falls upon subordinates, who may *never* have been inside gas works, the result is no doubt both appreciated by the gas companies, and valuable in checking the bills of the companies against the public. If any special extra quantity of gas happens to be charged for, the solution of the problem is usually of a difficult nature; it may hinge on an underground leakage, which the Royal Engineer Department is supposed to detect; it may be, however, that the metre is acting improperly and registering irregularly, a scientific and expert question which may puzzle the Commissariat Department. The gas supply in our military buildings is usually so limited and "fined" down by the use of the common regulation burner, not exceeding five cubic feet an hour, that it is hardly to be wondered at if poor "Tommy Atkins" occasionally thrusts the prong of his dinner fork down the gas-burner, to enlarge the holes and get a better light, or transfers himself altogether from the dimly-lighted barrack-room to the well-illuminated public-house, where the lavish expenditure of gas seems to be

Lamp with Fittings. Lamp without Fittings.



Fig. I.—½-size. Fig. II.—½-size.

THE VICTORIA "INCANDESCENCE" LAMP.

of no consequence to the proprietor. This is the delightful result of a complete system of routine, and the dual government of gas-pipes and gas by the Royal Engineer and Commissariat Departments. When "Tommy Atkins" wishes to circumvent the regulations, he knows exactly how to do so; if he can avert suspicion by inserting an undamaged burner the day before the usual quarterly inspection of barracks, he may be pretty certain that none will arise when the inspectors go round. Should some lynx-eyed barrack sergeant detect the damaged burners, he is not likely to detect any particular individual, and a general charge of twopence per burner is made against the occupants of the room; and gas is burnt at the public expense with considerable impunity.

In advocating the use of Electric light the following points seem to deserve consideration: it does not, like gas, consume or pollute the air, and it is a more

soft, but brilliant light; it does not heat rooms like gas, and is unaffected by draughts. The Electric light is also free from all danger of fire and explosion, while few weeks pass without some accidents from gas, causing a loss of life and property. Some of our readers will, no doubt, wonder why Electric lighting has not been more generally adopted throughout the kingdom in lighting private houses. We believe the reply lies in the fact that a hundred million sterling has been invested in gas shares, while, perhaps, three million represent investments in Electric light shares. The thoroughly impracticable and repressive Electric Lighting Act of 1882 has thrown insuperable difficulties in the way of Electric lighting, but there is some reason to believe that the Act may, before long, be remedied. So far as our military establishments are concerned the Act does not appear to apply, and the true way of attacking the problem seems to be to induce those who have the power to do so, to vote the necessary funds for the requisite installation at our fortifications, barracks, hospitals, cavalry stables, &c., and *take credit* for the large saving that would be effected by the discontinuance of gas. Electric lighting has been quite long enough handicapped by various causes, and possibly in our year of Jubilee, as the War Office appears to be very busy upon the "automatic increase" to the Scientific Corps' pension list and many other subjects, the Secretary of State for War may perhaps interfere, and inaugurate his reign by giving Electric lighting fair play throughout our military establishments, and making the soldiers' barracks more comfortable for "Tommy Atkins" than adjacent public-houses, and cease relegating young lieutenant-colonels to the pension list.

There is another economical consideration which is urged on the Barrack Department, namely, that at most barracks in the United Kingdom the mains and pipes have been down for periods varying from 30 to 40 years, and the time has arrived, and in some cases is past, when the worn-out plant requires renewal. If Major-General Webber's figures are correct, it is evidently most economical to replace the gas plant by the electrical.

The appalling catastrophe at the Opera Comique, Paris, will probably ere long render electric lighting of theatres compulsory. It seems high time that Government should intervene, and prevent managers and directors of theatres utilizing them without affording proper protection to the public who pay for their tickets, but do *not* pay for being burnt alive by negligent or improper use of gas.

The Bill that has now passed the House of Lords and has been sent down to the Commons, repeals that portion of the Act of 1882 which seriously hampered electric lighting. The new provision runs as follows:—

"Where any undertakers are authorized by a provisional order or special act to supply electricity within any area, any local authority within whose jurisdiction such area or any part thereof is situated may, within six months after the expiration of a period of forty-two years, or such shorter period as is specified in that behalf in the application for the provisional order or in the special Act, from the date of the passing of the Act, confirming such provisional order, or of such special Act, and within six months after the expiration of every subsequent period of ten years, or such shorter period as is specified in that behalf in the application for the provisional order, or in the special Act, by notice in writing require such undertakers to sell, and thereupon such undertakers shall sell to them their undertaking, or so much of the same as is within such jurisdiction, upon terms of paying the then market value of the goodwill of the business of the undertaking and of all lands, buildings, works, materials, and plant of such undertakers suitable to, and used by, them for the purposes of their undertaking within such jurisdiction, such value to be in case of difference determined by arbitration: Provided that the value of such goodwill, lands, buildings, works, materials, and plant shall be deemed to be their fair market value at the time of the purchase, due regard being had to the nature and then condition of such buildings, works, materials, and plant, and to the state of repair thereof, and the suitability of the same to the purposes of the undertaking, and, where a part only of the undertaking is purchased, to any loss occasioned by severance; but without any addition in respect of compulsory purchase. The Board of Trade may determine any other questions which may arise in relation to such purchase, and may fix the date from which such purchase is to take effect."

The illustrations explain themselves:

Figs. I. and II. illustrate the Brush Double Carbon Arc Lamp, arranged to burn for sixteen hours without renewal of carbons.

The great merit in the Brush Lamp lies in its extreme simplicity of construction and non-liability to get out of order, even when submitted to rough usage, and under conditions where other regulators must inevitably fail. All complicated gearing and delicate adjustments are dispensed with, thus avoiding the necessity of skilled labour and constant repair, so that it seems admirably adapted for barrack, fortification, and hospital lighting.

INDIAN LIFE.

THE EUROPEAN REGIMENTAL OFFICER.

By MAJOR-GENERAL DE BERRY.

THE Indian military year is divided into two periods; from the 15th October to the 15th April is considered, generally speaking, the cold weather, and in military circles is phrased the drill season; the remaining months of the year comprising what is commonly termed the leave or the "hot" season. During the drill season all is life and activity in the army in India. In the leave season, so called from the time before General Sir Charles Napier became Commander-in-Chief in India—when European regiments had about forty, and native corps twenty, officers present with each regiment, half of these officers were permitted



Effects of the Annual Course of Musketry.

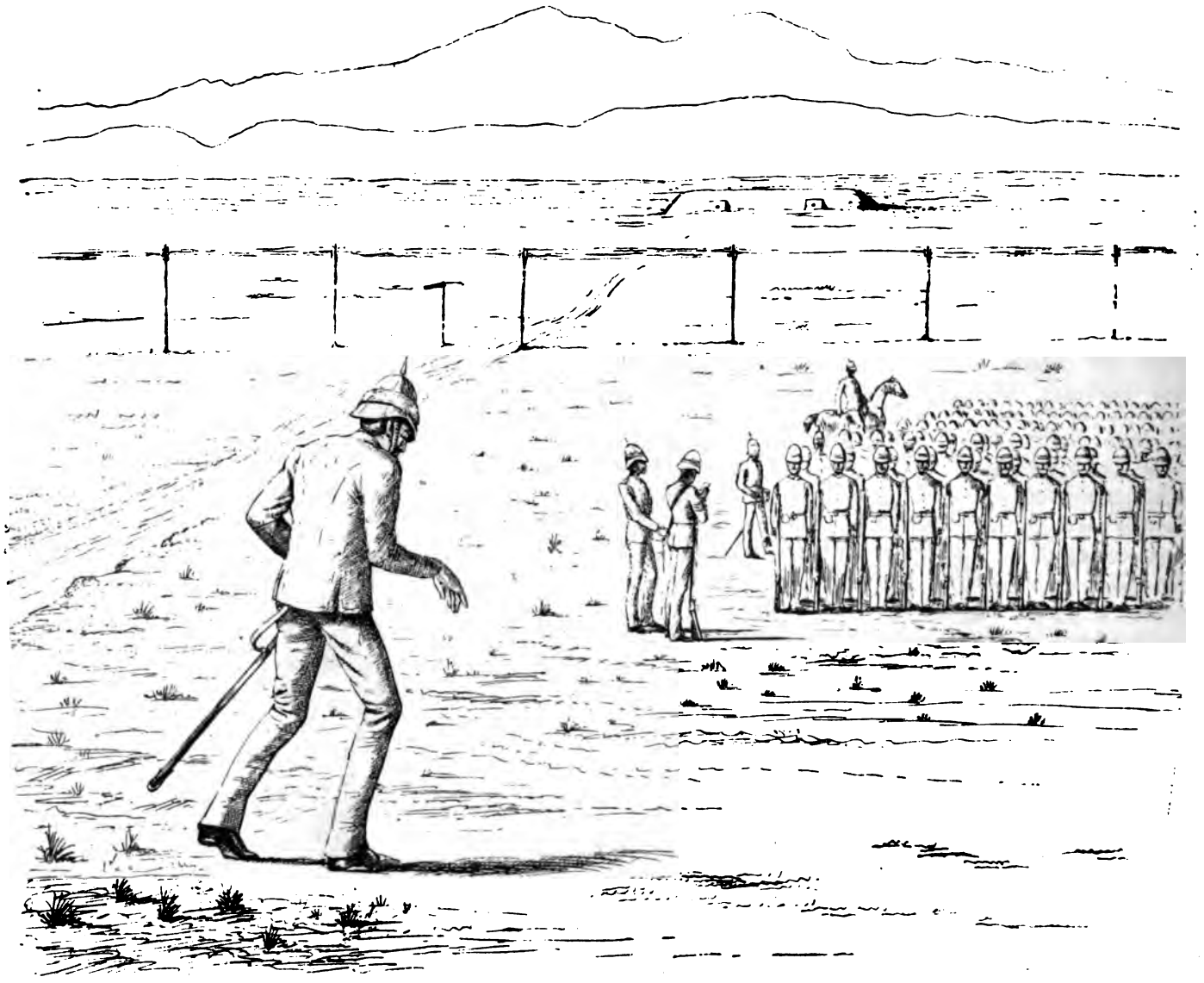
to avail themselves, if they were so inclined, of leave to the hills for six months, and thus this period of the year became generally recognized as the leave season; but as regards leave to the hills for the hot weather, this practice was, in the first instance, put a stop to by General Sir Charles Napier, who thought that as the rank and file had not the chance of repose in a cooler climate in the hot weather, the regimental officers ought not to have it either. The consequence was that applications for leave to the hills were refused, and Sir Charles, because he himself was in the hills, was sketched in an illustrated publication of that time, published in India, in an attitude astride the top of a mountain, wielding his sword to keep everyone off it, and he was called "the Old Man of the Mountain." Since that time, however, other circumstances have contributed mainly to check any exodus of regimental officers to the hills on any large scale; we refer principally to the reduction in the number of officers allowed to European and native corps in India, which has



Off Reckonings. A Colonel's Allowance

been fixed so low that, deducting officers away on duty undergoing garrison and other instruction, those absent in Europe, and others on privilege leave for two months in India, there are barely enough to carry out the duties with the regiment, and never

any to spare for any long residence in the hills, except a few required for duty with sick and weakly European soldiers at hill depôts for such men in India; on the other hand, now, soldiers, their wives and children (if any), are freely sent, in the case of Europeans, to the hill depôts we have mentioned, on the recommendation of a medical officer, and in the case of native soldiers, to their homes on the recommendation of a medical officer, or their commanding officer. In Indian cantonments in the drill season, most of the regimental officer's time is occupied in his professional duties; there are regimental parades almost daily, brigade parades, musketry instruction, all generally in the early morning; then orderly-room and company duties, courts-martial, boards, committees, orderly-officers' duties, school for instruction of junior regimental officers under the lieutenant-colonel or a major sometime during the day, reconnaissance, out-post, shelter-trench, and other duties, all tending to and working up for the General's inspection, diversified by camps for annual practice of artillery. The mornings of the officer, except on brigade holiday, one day a week, are almost always engaged; he takes advantage of that one day's break in the weekly routine to ride in the morning, to visit the public gardens, the public library and assembly rooms, to see as much as he can of station society generally; or he may go out shooting, hunting, or pig-sticking for the day, if he is a sportsman, in which case probably he is not a society man. If he does enter into station society, he at mid-day goes on a round of visits. In the afternoon there may be a cricket match to play in, or look on at, or a gymkana meeting, at which there is tent-pegging, sky races, and other sports. In the evening, if there is a regimental band playing, he frequents the band-stand to see and converse with his lady friends, and hear the music. Later on in the evening he may have to dine



STRUGGLING TO PARADE, THERMOMETER 110° IN THE SHADE.

out somewhere, at other messes, or with a station dinner party, or he may have friends dining with him at his own mess. In the hot weather the regimental officer has parades a few times a week only, and, if junior to the adjutant, has adjutant's drill to attend to also. His regimental and company duties are of the same nature as those in the cold weather, but made easier for him if possible. Brigade and station duties he has also, but these are generally in the early morning or evening. If he belongs to cavalry or artillery, his duties are varied occasionally by stables, saddlery inspections, and, in the case of the latter corps, by harness inspections and range-finding. If he happens to have nothing to do after breakfast, he spends part of his morning at his mess, reading papers or playing billiards, or he goes home to read professional books if he has an examination in prospect; if not, he reads other works, or he paints or otherwise usefully employs himself, or, if tired, takes a sleep. If he is a luncheon-eater he goes to mess for it, and then he may get up a rubber of whist. His spare afternoons when off duty, he passes in playing tennis at a station party, or in visiting the public gardens; he, perhaps, lounges at the mess, or plays racquets at the station court; sometimes he resorts to a swimming bath, after which he dresses and rides on the mall. Dances and theatricals are got up frequently in the summer months. Sportsmen go after large game in the hottest part of the year; for then water is scarce, and game is easier to find. In the rains civilians and persons that have been out in the districts all the cold and early part of the hot weather, come back into cantonments again, if they have houses there, and society is thereby very much increased. During the annual relief, or change of corps from one station to



A Punjab Fort in the Hot Weather.

another, the regimental officer's duties vary according to the manner in which the move is to be carried out: if it is by rail, after he has superintended the weighing and packing of the regimental baggage in the train, he takes his place in a troop train, travels at night and halts in the day-time at rest camps for the men to have their meals and repose, and so on daily till he reaches his destination; but if the move is by march route, first of the road, the first day is generally a day of great discomfort and inconvenience to the possessors of transport animals, and great fatigue and perplexity to the officer in command of the rear-guard; for the animals, being unaccustomed to what they are called upon to carry, or being fresh or badly-loaded, cast their loads adrift, or run away, easing themselves of their loads as they run, and, as the bother of again collecting the animals and the



A Summer Camp in the Hills.

all he has to draw tents for the men from an arsenal, unless they have them in regimental charge—his own tent, probably what is called a hill tent, about nine feet square, he provides himself with, and shares with another officer; transport camels, mules, pack bullocks, and carts have to be collected, and allotted all round; Government provides or pays for those of the soldier, officers pay for their own. Then, when the regiment starts on articles of transport rests with the rear-guard, whose duty it is to see everything into camp, it is often kept out till a very late hour in the day.

The marches usually are about fourteen miles long—more or less—the march is begun in the small hours of the morning, generally before daylight. The "Rouse" is sounded on the bugle, then the drummers beat the "General." The first thing to do is to get up, dress, then remove

everything from the inside of the tent. By the time this is all done, a bugle sounds one note, G, to strike tents and pack the animals which are brought up; and in one hour from the sounding of the "Rouse," the companies have fallen in, formed battalion, and marched off, leaving a rear-guard on the ground, whose duty it is to see the old encampment cleared of everybody and everything, and follow to the new camp. When the regiment reaches the ground chosen for its new encampment, it is halted, arms are piled, and sentries are posted, the remainder of during the rest, civilities are exchanged between the residents of the station and the travellers, and cricket matches are often played. The European officers' native servants accompany their masters on an ordinary march. On active service the regimental officer is under campaigning regulations; he is only allowed to have a Cabul tent, which, when he squeezes himself into it, fits him almost like a skin, it is so small; he has one native servant or shares one with another officer, and eighty pounds is the total amount of baggage each officer is



A Summer Night in the Plains, on the North-West Frontier.

men break off until the tents come up, which on arrival are taken to ground marked out by the quarter-master, by companies, and tents are pitched, arms, &c. being placed inside the tents. Then breakfast is prepared as soon as possible, and a wash is indulged in. Officers dine early on the march, generally about 3 o'clock P.M.; there is an evening parade about 5 o'clock; and tattoo, whilst marching, is at or about 7 o'clock P.M. If other cantonments lie in the line of route from the old to the new station, a halt for a few days is generally managed on reaching them, to exchange defective carriages; and permitted to have. Marching in the face of an enemy has to be very thoughtfully and carefully carried out; it has to be performed at any hour, with very great precaution; it is subject to delays and interruptions harassing to the troops, who have to work hard, suffer privations, and whose repose never can be properly and thoroughly secured. There are advance and rear-guards, reconnaissances, expeditions, and enterprises of all sorts, piquets, convoys, engagements in the defence and in the attack, patrols, foraging parties often entailing long and fatiguing marches, all of which the regimental

officer has to participate in, risking life and limb at every moment; and no one can say that, considering the discomfort and risks, the glory sought for by the regimental officer, when gained, is not richly deserved. When new territory is acquired, the newly annexed country, as in the case of Burmah, does not settle down



An Indian Fort.

peaceably all at once; there is always some disturbing element, troubles crop up which small expeditions are necessary to repress, at all seasons of the year. Then, also, till sites are selected and stations built, standing camps have to be maintained. Life in a tent under these circumstances is no bed of roses; and should the regimental officer erect any sort of house, it must be at his own cost and risk, for in the event of the station being changed no compensation would be granted by Government, and the outlay would be lost. Tbe regimental officer, when he obtains long leave or furlough, generally speeds homeward to England as soon as he can: it is generally at intervals of five years, and he wants to look up friends and relations that he does not wish to lose touch with altogether; or it may be that some urgent private affairs require his attention in England earlier than usual. However, except for cogent reasons, leave is seldom granted until a lapse of at least three years from the applicant's last return to India. Short leave for two months is, as a rule spent in India, at hill stations on the Himalayas, or in Cashmeer if the officer is in the Bengal Presidency, at Ootacamund or Bangalore if in Madras, at Mahableshwur if the officer is serving in the Bombay Presidency. Accumulative privilege leave for three months, granted when the officer has not been absent from duty for thirty-two consecutive months, rather tempts the officer to visit his native land, and he usually does so, and manages to spend half in England, and the rest travelling to and fro. Leave on medical certificate is spent wherever the medical board recommends it should be passed, the wishes of the sick officer being duly considered and complied with if possible; sometimes the officer proceeds to Australia for the benefit of the sea voyage, but oftener much the invalids come to England. At thirty-eight years' service the regimental officer of the Indian Army sells his "kit" and "turn out" in India, and quits the country for good. He has his colonel's allowances, which are very liberal, and, if a prudent man, he is very comfortable, that is if his health is good, and he is happy enough living at Cheltenham or Bath, or in London, where he can enjoy himself at his East India United Service Club in St. James's Square, and see and talk to old friends to his heart's content, about Dustypore and Warmerabad, also other stations in India, and incidents of Indian life that they have a mutual knowledge of. The exit from India of the officer of British troops is either on promotion into another battalion, or retirement—compulsory or voluntary—from the army, or on the departure of his battalion for England on completion of its tour of Indian service and relief by another corps or battery from home. In the latter case volunteering is opened for other corps, and the regimental officer's best soldiers leave him; we say best because they are not permitted to volunteer unless they are well-conducted, and in perfect health; and so the battalion returns home a mere skeleton in strength, composed of men going to the reserve or to be discharged, or men of indifferent character, or indifferent health, and with it its regimental officer.



Officer in Field Kit.

G. F. de B.

THE BATTLES OF THE BRITISH ARMY INSCRIBED ON THE REGIMENTAL COLOURS.

By ROBERT O'BYRNE, F.R.G.S

No. 4.—THE BATTLE OF MALPLAQUET.

BRITISH REGIMENTS PRESENT.—*Cavalry*: The 1st (the King's) Dragoon Guards; the 3rd (the Prince of Wales's) Dragoon Guards; the 5th (Princess Charlotte of Wales's) Dragoon Guards; the 6th (Carabineers) Dragoon Guards; the 7th (the Princess Royal's) Dragoon Guards; the 2nd (Royal Scots Greys) Dragoons; the 5th (Royal Irish) Lancers.

Infantry: The Grenadier Guards (1st Bat.); the Coldstream Guards (1st Bat.); the Royal Scots (Lothian Regiment), 1st Batt.; the 3rd Buffs (East Kent Regt.), 1st Batt.; the 8th (the King's), Liverpool Regt., 1st Batt.; the 10th (North Lincolnshire Regt.), 1st Batt.; the 15th (Yorkshire East Riding Regt.), 1st Batt.; the 16th (Bedfordshire Regt.), 1st Batt.; the 18th (Royal Irish) Regt., 1st Batt.; the 19th (Princess of Wales's Own) (1st Yorkshire) Regt., 1st Batt.; the 21st (Royal Scots Fusiliers) Regt., 1st Batt.; the 23rd (Royal Welsh Fusiliers) Regt., 1st Batt.; the 24th (the 2nd Warwickshire) South Wales Borderers Regt., 1st Batt.; the 26th (Scottish Rifles) Cameronian Regt., 1st Batt.; the 37th (North Hampshire) Regt., 1st Batt.

France arose, once more, heroically from her despair, at the summons of her Monarch, to enter upon another campaign for the honour of the French name. Although the Conferences of Utrecht were not opened till 1712, this was the last campaign in which a really great battle was fought, and both parties prepared themselves for the deadliest struggle of the whole war. Louis XIV. had at last resolved on entrusting the restoration of his fallen fortunes to the right man, the brilliant, gasconading, but hitherto neglected Villars, the victor of Friedlingen, so happily styled by Voltaire, who knew him well,—

L'Heureux Villars! fanfaron, plein de cœur!

Hitherto, the genius of this spirited commander had not been allowed a sufficient field. He had, indeed, been opposed to Marlborough on the Moselle in 1705, where, though restrained by positive orders not to hazard an engagement, he gained a reputation by checking his adversary. Since his great success against the Elector of Bavaria, before he became the ally of France, his ability and science had been thrown away in a petty defensive warfare in the Alps against the Duke of Savoy, or occupied with the suppression of the revolt in the Cevennes. Now, however, he flew to the frontiers, where he was received enthusiastically by the soldiers, with whom he was an especial favourite. No leader was so calculated to restore the lost spirit of an army, and, above all, a French army. He shared the black bread and privations of the meanest soldiers, sat with them under their tents and around their watch-fires, and told them stories of the prowess of Frenchmen such as Frenchmen especially love to hear. Yet Villars himself was startled at the state in which he found the army. The battalions, indeed, were tolerably full, for the famine which depopulated France drove men to follow the bread-waggons of the army. Yet these were now, for the most part, empty. The soldier was in want of everything—bread, arms, and clothes, for even clothes were often bartered away for bread. Yet the popularity of Villars—a popularity founded, not like Vendôme's, upon license, but upon qualities which made him beloved by enemies, as well as by friends—wrought wonders, and in a short time he declared himself that the patience and firmness of his soldiers surpassed belief, although, with an army so ill-provided, consisting so largely of raw levies, so discouraged by disaster, he dared not take the offensive, and opposed the designs of the Allies by a war of marches and entrenchments.

The Confederate force took the field well prepared and equipped, wanting in nothing, full in numbers, and eager for assault, confident of victory, and proud of their commanders. The Allied plan of campaign was to force Villars to a battle, besiege the strong places on the Upper Lys, penetrate as far as Boulogne, take it with the aid of a fleet, then lay Picardy under contribution, and push on to Paris. From the backwardness of the season, it was late in June before they took the field. When they did so, they found Villars posted between Douay and the Lys, behind lines so strong, both by nature and art, that they did not venture to attack him. Making a feint in the direction of Villars, which induced him to draw off part of the garrison of Tournay, together with those of other towns, for his own defence, they then turned on Tournay, took it, and proceeded to attack Mons. Villars did not venture to interfere with

the siege of Tournay; but when he saw Mons was threatened he broke up from his camp by the Lys, and marched to the heath of Malplaquet, which was situated in front of one of the openings of the country called *trouées*, between two thick woods on the plain of Mons.

The locality will now be described that was soon to be made famous by a mighty contest between 200,000 men. From the Belvidere, on the top of the conical hill covered by the streets of Mons, there is an opportunity for observing the general character of the ground. The features are of a kind generally found where great battles have been fought—low flat hills, undulating with valleys, but no rocks or abrupt declivities to afford to either party great advantages over the other. The critical centre of contest, however, can hardly be identified from Mons, as it is ten miles distant, with intervening elevation. The peasantry in the neighbourhood will tell that the centre of contest is indicated by a small old church, called by them La Chapelle Malbrook, a name given to Marlborough in French tradition, and the accounts of the battle show that they are correct. There are two villages near this small church. The more remote was Taisnière, and this was the original name of the battle; but it was superseded by the name of the other village, Malplaquet. Malplaquet is now a considerable village of good houses, consistent with the aspect of agricultural wealth around it. Cultivation has rendered it difficult to trace the ground so as to identify upon it the motions of the two armies. The paved road to Mons is still there, and so is a portion of the old stretch of forest. Its trees are beech, birch, ash, and sycamore—no pines. It is a forest decaying and reproducing itself, and looks as fresh and young as it could have looked on the battle-day. An open heath was among the features then, but that is gone. This patch of forest is still serviceable, along with the villages of Malplaquet and La Chapelle Malbrook in identifying the field of battle and helping to solve the policy of its selection. The trees are a remnant of the forest of Lagnière, stretching north and south all along the battle-field on its western side. A tract of forest-land, called the woods of Sart, Taisnière, and Blanière, stretched along the eastern side of the field. As a strong post on the highway through France, and touching the frontier, Villars sought to secure himself and stop his enemy's march southwards.

Villars had so adjusted his movements that the Allies thought his forward progress was only a feint to enable him to throw reinforcements into Mons. However, when Villars took up his position at Malplaquet, on the night of the 8th of September, he found the Allies between himself and Mons. The left of Marlborough was so close to his right that cannonading commenced. Marlborough was for immediate attack, having, as he thought, the advantage in troops, before the enemy could fortify his position. To this the Dutch deputies objected, as also did Eugene, who thought he should not have sufficient time to bring up his own men. Mons, then, was blockaded, various movements made, while it was determined to bring Villars to an engagement. Villars, faithful to his defensive system, entrenched himself with all speed, and made his position as strong as art could make it. His two wings of infantry occupied the woods—that of Taisnière being on his left, that of Sart on his right—protected by abattis and earthworks of great strength and solidity. When the allied generals surveyed his position, at daybreak on the 10th, it seemed so formidable that a council of war was again called, and Eugene urged the necessity of waiting for a further detachment from Tournay. Marlborough, it is said, was still for immediate attack. The remainder of the 10th was then spent in dispositions, while Villars was employing every hour, night and day, in strengthening his position with earthworks, entrenchments, fascines, and barricades of trees. Late on the 10th he struck out a second line of entrenchments, behind which he might retire if beaten from the first. On the morning of the 11th, under cover of a fog, the allied forces placed their batteries in position; the sun broke through at half-past 7, and the action commenced. Eugene commanded the right, which was to advance upon the wood of Sart, and carry the entrenchments there. Marlborough reserved to himself the centre, which was to move upon the redans on the open ground; while the Prince of Orange, supported by the hereditary Prince of Hesse-Cassel, led the Dutch infantry, on the left. The



Louis Hector de Villars.

allied troops, though composed of so many different nations, were all united with one spirit, bound together by the remembrances of many victories, and full of confidence in their generals. The French, however, were animated in the highest degree with patriotism, and enthusiasm spread itself from rank to rank.

For about half an hour the cannon continued to thunder, so as to reach every part of the battle-field with their balls, when Marlborough moved forward his troops in echelon, the left in front, in order to commence his projected attack on the French centre and left. The Dutch, who were on the left, agreeably to orders they had received, which were merely to threaten, and not make a real attack for half an hour, halted when within range of grape, and a violent cannonade was merely exchanged on both sides; but Count Lottum, who commanded the centre of twenty-two battalions, continued to press on, regardless of the storm of shot and grape with which he was assailed, and when well into the enemy's line he brought up his left shoulders, and in three lines attacked the right of the wood of Taisnière; while Lord Orkney, with his fifteen battalions of British infantry, as Lottum's men inclined to the right, marched straight forward to the ground they had occupied, and menaced the entrenchment before him in the opening. Eugene, who was with Schulemberg's men, advanced without firing a shot, though suffering dreadfully from grape, till within pistol-shot of the batteries. They were there, however, received by so terrible a discharge of all arms from the entrenchments—the French soldiers laying their pieces deliberately over the parapet, and taking aim within twenty yards of their opponents—that they recoiled above 200 yards, and were only brought back to the charge by the heroic efforts of Prince Eugene, who exposed his person in the very front of the line. During this conflict three battalions under Gauvain, brought up from the blockade of Mons—to whom were united some Austrian battalions, who originally formed the extreme right of Schulemberg's corps, but were unable to cross a marsh which lay in their front—stole unperceived, amidst the tumult in front, into the north-eastern angle of the woods of Taisnière, and were making some progress, when they were met by three battalions of French troops, and a vehement fire of musketry soon rang in the recesses of the wood.

Meanwhile Marlborough in person led on d'Auvergne's cavalry in support of Lottum's men, who speedily were engaged in a most terrific conflict. They bore without flinching the fire of the French Brigade du Roi, which manned the opposite works, and, crossing a ravine and small morass, which had been deemed impassable, rushed with fixed bayonets and the most determined resolution, right against the entrenchment. So vehement was the onset, so impetuous the rush, that some of the leading files actually reached the summit of the parapet, and, those behind pushing vehemently on, the redoubt was carried amidst deafening cheers. But Villars was directly in its rear, and he immediately led up in person a brigade in the finest order, which expelled the assailants at the point of the bayonet, and regained the work. Marlborough, upon this, charged at the head of d'Auvergne's cavalry; and that gallant body of men, 3,000 strong, dashed forward and entered the entrenchments, which were at the same time turned on their right, and surrounded by some of Lottum's battalions. While this desperate conflict was going on in front and flank of the wood, Withers, with his corps brought up from Tournay, was silently, and with great caution, entering the wood on the side of La Folie, and had already made considerable progress before any great efforts were made to expel him. The advance of this corps in his rear rendered it impossible for Villars any longer to maintain the advanced line of works in the front of the wood; it was therefore abandoned, but slowly, and in admirable order; the troops retiring through the trees to the second line of works in their rear, which they prepared to defend to the last extremity.

While this sanguinary conflict was raging in and around the woods of Taisnière, the half-hour during which the Prince of Orange had been directed to suspend his attack had elapsed, and that gallant chief, impatient of inactivity when the battle was raging with such fury on his right, resolved to move forward in good earnest. His troops, almost all auxiliaries in the service of Holland, were of various nations, but all veterans of the most determined bravery. The Scotch brigade, led on by the Marquess of Tullibardine, headed the column on the left; to their right were the Dutch, under Spaar and Oxenstiern; while the Prince of Hesse Cassel, with twenty-one squadrons, was in reserve, to support and follow the infantry into the works when an opening was made. On the word "March" being given, the troops of these various nations, with rival courage, advanced to the attack. The Scotch Highlanders, headed by the gallant Tullibardine, eldest son of the Duke of Athol, rushed impetuously forward to the assault, despite a desperate fire of grape and musketry which issued from the works, and succeeded in reaching the top of the entrenchment. A second line of entrenchments was carried in like manner; and if an adequate reserve had been at hand to support them, this part of the line would have been secured, and the battle gained. But the assailants were numerically too weak, the enemy too strong, for immediate success. The Prince of Orange had no reserve; all his troops had hurried to the assault; he had only forty battalions to the French seventy opposed to them. But before they could deploy they were charged by the French infantry in close

order, and driven out of the entrenchments. Tullibardine met a glorious death in the redoubt he had won. Equally gallant was the assault, and unfortunate, in the end, the result, of the Prince of Orange's attack on the left of the right towards the French centre. There, too, by a vehement rush, the entrenchment was carried; but the men who surmounted it had no sooner penetrated it than they were attacked by Boufflers, at the head of fresh troops in close order in front, while a powerful battery opened with grape on their flank. This double attack proved irresistible; the assailants were pushed out of the works with dreadful slaughter. Spaar lay dead on the spot; Hamilton carried off wounded.

Seeing his men recoil, the Prince of Orange seized a standard, and, advancing alone to the slope of the entrenchment, said aloud: "Follow me, my friends; here is your post!" But it was all in vain; it was no longer possible to force the enemy's works. Boufflers' men from the French second line had now closed up with the first, which lined the works, and a dense mass of bayonets, six deep, bristled on their summit behind the embrasures of the guns. A dreadful rolling fire issued from them, their position could be marked by the ceaseless line of flame, even through the volumes of smoke which enveloped them on all sides; and at length, after displaying the most heroic valour, the Prince of Orange was obliged to draw off his men, with the loss of 3,000 killed, and twice that number wounded. Instantly the Brigade of Navarre issued with loud shouts out of the entrenchments. Several Dutch battalions were driven back, and some colours, with an advanced battery, fell into the enemy's hands. Boufflers supported this sally by his *grenadiers-à-cheval*; but the Dutch infantry, even in the moment of repulse, presented so steady a front that they over-awed their pursuers. As they slowly retired, discharging volleys all the way, the Prince of Hesse-Cassel came up with his well-appointed squadrons on the other side, and, after a short struggle, drove the French back into their works.

Hearing that matters were in this precarious state on the left, Marlborough galloped from the right centre, acompanied by his staff, where Lottum's infantry and d'Auvergne's horse had gained such important advantages. Matters ere long became so alarming that Eugene also followed in the same direction. The attack on the left was renewed with the aid of four battalions of Hanoverians under General Rantzau, and the entrenchment in front of them, in the French left centre, carried; but after they got in, the assailants were again mowed down by grape-shot from the works behind, and, charged by Steckomberg, driven out with dreadful loss. All the Hanoverian officers except three were killed or wounded; and the French in the struggle also sustained a grievous loss, including Steckomberg, who here closed his long and honourable career. On his way along the rear of the line the English general had at once ocular demonstration of the terrible reverse which had been experienced, and of the heroic spirit with which his troops were animated; for he saw the shattered remains of the Dutch infantry, reluctantly measuring back their steps beyond the reach of grape-shot, and numbers of the wounded Dutch and Hanoverians, whose hurts had just been bound up by the surgeons, again hastening to the front, to join their comrades; though some, faint from the loss of blood, tottered under the weight of their muskets. The reserves were hastily directed to the menaced front, and by their aid the combat was in some degree restored in that quarter,



John William, Prince of Orange.

while Marlborough and Eugene laboured to persuade the Prince of Orange, who was burning with anxiety at all hazards to renew the attack, that his operations were only intended to be a feint, and that the real effort was to be made on the right, where considerable progress had already been made.

Order was partly restored in this quarter when intelligence arrived from the right that the enemy were assuming the initiative in the wood of Taisnière, and were pressing hard upon the troops both at La Folie and in front of the wood. In fact, Villars, alarmed at the progress of his enemy on his left in the wood, had drawn considerable reinforcements, including the cele-

brated Irish brigade, from his centre, and sent them to the threatened quarter. Marlborough immediately saw the advantage which this weakening of the enemy's centre was likely to give him. While he hastened back, therefore, with all imaginable expedition to the right, to arrest the progress of the enemy in that quarter, he directed Lord Orkney to advance with his British battalions, supported by a powerful body of horse on each flank, directly in at the opening between the two woods, and if possible to force the enemy's entrenchments in the centre now stripped of their principal defenders. These dispositions, adopted on the spur of the moment, and instantly acted upon, proved entirely successful. Eugene galloped to the extreme right, and renewed the attack with Schulemberg's men, while Withers again pressed on the rear of the wood near La Folie. So vigorous was the onset that the Allies gained ground on both sides of the wood, and Villars, hastening up with the French Guards to restore the combat near La Folie, received a wound in the knee, when gallantly heading a charge of bayonets, which obliged him to quit the field. Unable any longer to sit on horseback, he was placed, at his earnest desire, in a chair, that he might see the battle and continue in the field; but the pain of the wound and the loss of blood soon became such that he fainted, and was carried senseless to Quesnoy. Eugene also was wounded on the head while rallying his men, and leading them gallantly to the charge. His attendants pressed him to retire that the wound might be dressed; but he replied, "If I am fated to die here, to what purpose dress the wound? If I survive, it will be time enough in the evening." With these words he advanced again to the head of the line; and the troops, animated by the heroism of their beloved general, who pressed on, though the blood was streaming over his shoulders, followed with such impetuosity that the works were carried, and the victors re-entered the wood pell-mell with the broken enemy.

In the centre still more decisive advantages were gained. Lord Orkney there made the attack with such vigour that the entrenchments, now not adequately manned, were at once carried; and the horse, following rapidly on the traces of the infantry, broke through at the openings between the works, and spread themselves over the plain, cutting down the fugitives in every direction. Meanwhile, the guns on the summit of the works which had been carried, wheeled around, opened a tremendous fire on the dense masses of the French in their rear, who had no defence against the fire of entrenchments by which they expected to be protected. Confusion, accordingly, prevailed in the rear; the retiring infantry got mingled with the reserve cavalry, and the grape-shot fell with unerring effect on both. Marlborough, upon seeing this advantage, instantly gave the grand battery of 40 cannon in the allied centre orders to advance. With the utmost speed the guns were limbered up, and moving on at a quick trot; they soon passed the entrenchments in the centre, and, facing to the right and left, opened a tremendous fire of canister and grape on the dense masses of the French cavalry which stood in the rear of the infantry, who were almost all in front among the works. These noble troops, however, bore up gallantly against the storm, and even charged the allied horse before they had time to form within the lines; but they were unable to make any impression, and retired from the attack sorely shattered by the allied artillery.

The battle was now gained. Villars' position, how strong and gallantly defended soever, was no longer tenable. Pierced through in the centre, with a formidable enemy's battery on either side, thundering on



George Hamilton, Earl of Orkney.

the reserve squadrons, in the very heart of his lines, and turned and menaced with rout on the left, it had become hopeless to keep the field. Boufflers, upon whom, in the absence of Villars in consequence of his wound, the direction of affairs had devolved, accordingly prepared for a retreat, and he conducted it with consummate skill as well as the most undaunted firmness. Collecting a body of 2,000 chosen horse yet fresh, consisting of the *élite* of the Horse Guards and Garde-du-Corps, he charged the allied horse which had penetrated into the centre, at this time much blown by its severe fatigues in the preceding part of the day. The


MALPLAQUET
Blangies
Tambour
Taisnieres
Louvroir
La Folie
Wood of Blangies
Wood of Boussoy
Wood of Monstrœul
Wood
Bastrops
Aulnois
Orneau
Wood
Hon R
To Bavay
To Bavay
Wood of Lonpre
Aulnois
Orneau
Wood
Malgovert
Aulnois
Orneau
Wood
Aulnois
Orneau
Wood
Aulnois
Orneau
Wood

most desperate cavalry action of the war ensued, and for some time was very doubtful. Boufflers, after a few words of encouragement, himself charged at the head of the Maison-du-Roi and Gendarmerie. The shock was irresistible; the allied cavalry were worsted and driven back to the entrance of the entrenchments; but all the efforts of this noble body of horsemen were shattered against Orkney's British infantry, which, posted on the reverse of the works they had won, poured in, when charged, so close and destructive a fire, that half of the gallant cavaliers were stretched on the plain, and the remainder were forced to make a precipitate retreat.

Still, the indefatigable Boufflers made another effort. Drawing a large body of cavalry from his extreme right, where they had been little engaged, he marched them to the left, and, re-forming his squadron again, advanced to the charge. The brave Auvergne met them at the entrance of the works, and six times in the desperate strife which ensued were the French and allied horse alternately driven back by each other's prowess. But Marlborough no sooner saw this than he charged the Garde-du-Corps with a body of British horse, which he himself led on, and drove them back, while the infantry "staggered and reeled like a sinking ship" under the terrific fire of the allied guns, which had penetrated the centre. The whole of Prince Eugene's cavalry, which had passed at full gallop in the rear of Marlborough's right wing, came up and supported the British General in this decisive onslaught. By their united efforts the French horse were finally driven back behind the rivulet called Camp Perdu. At the same time the Prince of Orange and the Prince of Hesse-Cassel renewed the attack on the entrenchments which crossed the French right; the latter, penetrating through the now broken centre, brought up his right shoulder, and assailed their flank, while the Prince of Orange threw himself on their front. In ten minutes these works were carried; and a tremendous shout, heard along the whole line, announced that the whole right of the position had fallen into the hands of the Allies.

In these desperate circumstances Boufflers saw that further resistance was hopeless, and he and his brave troops did all that skill and courage could to arrest the progress of the victors, and withdraw from the field without any additional losses. Forming his troops into three great masses, with the cavalry, which had suffered least, in the rear, he slowly, and in perfect regularity, commenced his retreat in the direction of Bavai. D'Artagnan, who, for his conduct in the battle, was made Marshal Montesquieu, marched off in close column through the woods. Puysegur, with fifty battalions and Legal's cavalry, moved direct from the French left, by Quevrain, on Bavai; Boufflers himself retired by Taisnière, where he crossed the Hon, and Luxembourg crossed the rear with the cavalry. Beyond the woods, on the plain in front of Bavai, the infantry and cavalry rejoined, and, after halting to collect the stragglers and break down the bridges, passed the Honeau, in the vicinity of that town. The Pretender, who was with the rear-guard, repeatedly charged the pursuers at the head of his squadron, and showed, in retiring from a field so fatal to his house, the hereditary valour of his race. The Allies had suffered so much, and were so completely exhausted by the fatigue of this sanguinary and protracted battle, that they gave them very little molestation. Contenting themselves with pursuing as far as the heath of Malplaquet, and the level ground around Taisnière, they halted, the men at once sinking into sleep. Meanwhile the French, in the best order but in deep dejection, continued their retreat, still in three columns; and after crossing the Hon in their rear, reunited below Quesnoy and Valenciennes, about twelve miles from the field of battle.

Such was the desperate battle of Malplaquet, the most sanguinary and obstinately-contested which had yet occurred in the war, and it is hard to say to which of the gallant antagonists the palm of valour and heroism is to be given. The victory was unquestionably gained by the Allies, since they forced the enemies' position, drove them to a considerable distance from the field of battle, and prevented the raising of the siege of Mons, the object for which both parties fought. The valour they displayed had extorted the admiration of their gallant and generous enemy. The allied troops took fourteen guns and twenty-five standards, among which was the "Arnette Blanche," the most honoured of the ensigns of the light cavalry of France; but Louis XIV. was with reason consoled for the loss of these trophies by thirty-two standards, chiefly Dutch, which his troops brought away from this desperate passage of arms. Both Prince Eugene and Marlborough exposed themselves more constantly than they had ever done in any former action; and cordial as had been their understanding on all previous occasions, it was generally observed that on this they seemed animated only by a generous emulation which would most aid and support the other. On the other hand, these advantages had been purchased at an enormous sacrifice, and never since the commencement of the contest had the scales hung so even between the contending parties. In truth, the battle of Malplaquet was a desperate duel between England and France, in which the whole strength of each nation was put forth; and the successful result was rather owing to the superior talent of the English General, and the unconquerable resolution he had communicated to his followers, than to any superiority either of military skill or national resources enjoyed by the victorious party. Nothing had occurred

like it since Agincourt; nothing occurred like it again before Waterloo. The Allies lost killed, in infantry alone, 5,544; wounded and missing, 12,706—in all, 18,250, of whom 286 were officers killed and 762 wounded. Including the casualties in the cavalry and artillery, their total loss was not less than 20,000 men, or nearly a fifth of the number engaged.

The French loss, though they were worsted in the fight, was less considerable, and did not exceed 14,000 men—an unusual circumstance with a beaten army, but easily accounted for, if the formidable nature of the entrenchments which the Allies had to storm in the first part of the action is taken into consideration. In proportion to the numbers engaged the loss to the victors was not, however, nearly so great as at Waterloo. Then was seen the prophetic wisdom with which Marlborough



Marshal Boufflers.

had so strongly urged upon the British Government the propriety of augmenting the allied forces at the commencement of the campaign. But for these, the campaign would have been indecisive, or terminated in misfortune. With the additional troops he so strongly pleaded for, it would have terminated in a decisive victory and Malplaquet would have anticipated Waterloo. Villars wrote with truth to the French King after the battle, "If God vouchsafes to our enemies another such battle, your Majesty may consider your enemies as destroyed." Few prisoners—not above 500—were made on the field; but the woods and entrenchments were filled with wounded French, —above 3,000 in number—the whole of whom fell into the hands of the Allies, and those who survived—about 1,500—augmented the number of the prisoners. A solemn thanksgiving was read in all the regiments of the army two days after the battle, after which the soldiers of both armies joined in removing the wounded French on 200 wagons to the French camp. Thus after the conclusion of one of the most sanguinary fights recorded in modern history, the first acts of the victors were the raising the voice of thanksgiving and the doing of deeds of mercy.

Both armies, in addition to the prodigious number of killed and wounded of the private soldiers, had to lament a very great and melancholy list of casualties among the superior officers. On the side of the Allies, General Baron Spaar, Count Oxenstiern, Generals Wuk, Tettau, Goor, Lallo, and Lord Tullibardine were killed; Prince Eugene, Lieut.-Generals Spaar and Webb, Major-Generals Waskerback and Hamilton, Brigadiers Cronstrom and May, and Colonel Sir John Prendergast were wounded. On the French side Boufflers, like Marlborough, miraculously escaped, though they both exposed their persons in the very highest degree. But Villars was severely wounded on the knee, and the Marquis de Chemerault, Baron Pullaviani, Count de Beuil, Chevalier d'Ervi, the Marquis de Charost, Counts Moncart, d'Aubrey, and Colonel de la Larn of the Guards were slain; the Young Pretender, the Duke de Guiche, the Duke de St. Agnau, the Marquis de Tele, the Marbuis de Gondrin, were wounded. The enumeration of these names carriés us back to the days when the nobility of modern Europe arose from the exploits of its armed knights; and proves how truly the great families of France still served their country with their swords, and shed their best blood in its defence.

The following are the Duke of Marlborough's meagre (from political causes) official despatches, addressed to Mr. Secretary Boyle, announcing this great victory:—

"Camp at Blaregnies,

"Sir, "11th Sept. 1709.

As soon as I had despatched my letter to you on Saturday from Havre, we were alarmed with the enemy's marching to attack the Prince of Hesse; upon which the whole army was immediately put in motion, but it was the next day at noon before all the troops could come up. In the morning they sent out a detachment of four hundred horse to observe our march, which the head of the Prince of Hesse's troops attacked, and took the Colonel who commanded them, with the Lieutenant-Colonel, several other officers, and about fifty of the men, prisoners. Upon notice of our army's being on the side of the Hague, the enemy stretched out their line from Quievrain to the right, which they continued to do the next day, and yesterday they possessed them-

selves of the woods of Douay and Blangies, where they immediately began to entrench. This motion of the enemy kept our army for two nights under their arms, and in the evening as soon as the twenty-one battalions and four squadrons we were expecting from Tournay were come within reach, it was resolved to attack them; and the necessary dispositions being made, we accordingly began at eight this morning. The fight was maintained with great obstinacy till near twelve o'clock, before we could force their entrenchments and drive them out of the wood into the plain, where their horse was all drawn up; and ours advancing upon them, the whole army engaged and fought with great fury till past three in the afternoon, when the enemy's horse began to give way and to retire towards Valenciennes and Conté, and part of them towards Maubeuge. We pursued them to the defile by Bavay, with great slaughter; all our troops behaving themselves with the greatest courage. We are now encamped on the field of battle. You may believe the loss must have been very great on both sides. We have made a good number of officers prisoners, but, as I send this express by Lieutenant-Colonel Graham, I must refer you to my next for further particulars. In the meantime, I heartily congratulate with you upon this great success.

"Sir, yours, &c.,

"MARLBOROUGH."

From the same to the same:—

"Camp at Belian,

"SIR, "13th Sept. 1709.

You will have received, by Lieutenant-Colonel Graham, the good news of the victory God Almighty was pleased to bless H.M.'s arms with on Wednesday. Our army continued on the field of battle till yesterday in the afternoon, when the troops removed to their former camp in order to go on with the siege. Upon viewing the field of battle yesterday morning, I find the enemy were very strongly posted besides their entrenchments, which makes our victory the more glorious. In the heat of the battle there was little quarter given on either side, so that the number of prisoners is not so considerable as it would otherwise have been. Most of the officers we have taken are wounded. We give them passes on their paroles for two months.

"I am, &c.,

"MARLBOROUGH."

The British cavalry in this action (consisting of the 1st Dragoon Guards, Colonel The Hon. Henry Lumley; the 3rd Dragoon Guards, Colonel Thomas Viscount Windsor; the 5th Dragoon Guards, Colonel William Cadogan; the 6th Dragoon Guards, Colonel Francis Palmer; the 7th Dragoon Guards, Colonel De Schomberg; the 2nd Dragoons, Colonel Lord John Dalrymple, and the 5th Lancers), commanded by Lieut.-General Wood, and in connection with the Prussian cavalry, charged the broken French centre, and were met by a compact line of French cavalry, consisting of the Gardes-du-Corps, Light Horse Musqueteers, and Horse Grenadiers of the Royal Household, led by Marshal Boufflers, and these distinguished troops succeeded in driving back the squadrons of the Allies. The British horsemen, however, were only repulsed, and not defeated; they soon rallied again, and, glowing with zeal to encounter so celebrated an enemy, returned to the charge, when their valour and prowess prevailed, and, the French squadrons being driven from the field, the pursuit was continued as far as the village of Quievrain; and after a fearful slaughter, sixteen pieces of cannon, twenty colours, and twenty-six standards, with a number of prisoners, were captured.

The British infantry, consisting of two battalions of the Guards (Grenadiers and Coldstreams), Ossory's 1st Royals, Argyll's 3rd, Ingoldsby's 8th, Evans's 10th, Godfrey's 16th, Webb's 18th, Primrose's 24th, and Lalos' 21st Regiments, the whole under the immediate command of Lord Orkney, advanced upon the French entrenchments, carrying all before them; the British infantry stormed the works and overpowered the Bavarians and the Cologne Guards, but suffered severely in doing so. Many officers and men were killed in the attack, and Lieut.-Colonel Rivers of the Coldstreams, commanding the second or combined battalions of Guards, who, early in the day had been carried off the field in a fainting state from the effects of a severe wound, and returned at this period to resume his command, was shot dead.

And now, in conclusion, let us examine the tactics of this great battle. The fortification of a camp in preparation for a battle is an admission of weakness. The commander abandons any bold attacking strategy, and sacrifices the pliability and potency of his army, that he may secure its safety. Between the French force, heavily fortified but embarrassed by the restraints of their fortress, and the assailing host, armed by the highest skill that the armies of the world could produce, there appeared for some time to be a contest terribly equal, until it was seen that the defenders of the fortress were thinned in number without slaughter. The neighbouring forest-land, if it was a protection to the encamped army as a whole, was a still more available protection to those who retreated through the forest glades. It happened that a large body of reinforcements had to be brought from Tournay to join the army of the Allies; and Marlborough had provided that, instead of coming up to the front, they should abide until their services were wanted in the enemy's rear. These had come into action, and there was no meeting their attack but by weakening the force in the front. At the same time, a lateral force on the left—a mixed body of

Scots and foreigners—had been kept in reserve under the command of the Prince of Orange; and the weakened defenders of the fortifications were attacked in rear and flank. This was conclusive, and the battle was won. The celebrated Marshal Saxe, who was himself in this action, has left the following observations in his *Reveries* on this battle:—"If in place of shutting the French troops up in bad entrenchments, Villars had contented himself with drawing abattis from the three woods opposite the entrances, and put in those entrances three redoubts, I think affairs would have turned differently. What would the Allies have done? Would they have ventured to attack three redoubts, defended each by several brigades? Had they done so I doubt if they would have come well out of the affair. It is the



John Campbell, 2nd Duke of Argyll and Greenwich.

nature of the French nation to excel in attack. When, therefore, a general has reason to distrust the grand order which is generally observed in great battles, or the exact discipline of his troops, and when the attack is to be made in detail and by brigades, he will find it for his interest with the French troops to do so. The valour and fire which animates that nation has never failed them; and from the days of Julius Cæsar, who notices it in his *Commentaries*, I know of no instance in which they have not well fastened on any enemy who presented himself. Their first shock is terrible; nothing is wanting but opportunity for renewing it under favourable circumstances. Nothing is so fit for doing so as these redoubts; you constantly feed them with fresh troops, to attack in their turn the enemy who have attacked and been repulsed. Nothing occasions such fear and hesitation in an enemy; for while he attacks, he is constantly in dread of being attacked in flank; and our troops would make such attacks in better heart if they could be assured that their retreat was secured, and that the enemy would not venture to pursue into the cross-fire of their redoubts. What would have happened at Malplaquet if Marshal Villars had kept in hand the largest part of his army, and had only had to deal with the half of that of the Allies, who had the kindness to engage in the combat in such a way that it was separated by a wood, and could not communicate with the remainder? The rear of the French army would, in such an operation, have been secured. It seems to me that the Marshal might have levelled his entrenchments on the approach of the Allies, and given battle in the order I have proposed. A counter-march to the right would have done the whole."

Taking the battle generally, together with the Marshal's opinion on its results, the operations afford a highly-interesting study for military men.

The French Marshals defeated by Marlborough.—As we complete this month the splendid series of victories won by Marlborough over the French, the occasion may not be inopportune to note the generals he defeated. Camille D'Hostun, Duc de Tallart, served under Condé and Turenne, became a lieutenant-general in 1693, and marshal in 1703. His victory over the Imperial forces at Spire, was more than counterbalanced by his defeat at Blenheim, a defeat, however, which did not interfere with his subsequent elevation to the peerage as a duke, being made a Minister of State and a Fellow of the French Academy. François de Neufville, Duke de Villeroi, having distinguished himself at Nerwinda in 1693, was at once created a marshal, and got subsequently defeated in every battle he commanded, notably at Ramillies. These calamities, however, do not appear to have interfered with his favour at court, for Louis XIV. afterwards appointed him Governor of Lyons, and guardian to the infant Louis XV. Louis Joseph, Duke de Vendôme, was born 1654. Making his *début* in arms in Holland in 1672, he become Maréchal de Camp in 1678, and Governor of Provence in 1681, distinguishing himself at the siege of Mons, and Namur, and in the battles of Steinkerque and Marsaille. Sent as general-in-chief into Catalona, he captured Barcelona, and secured the Treaty of Ryswyk in 1697. During the Spanish War of Succession he fought at the three principal scenes of conflict, in Italy, the Low Country and Spain. In 1708 he was signally defeated at Oudenarde, but recovered his prestige in 1710 in the victory of Villaviciosa, restoring his Crown to Philip V. at Madrid. In 1712, while endeavouring to complete the submission of Spain, he unfortunately died, leaving behind him the reputation

of a general whose only drawbacks were deficiency of activity, thought, and prudence. Louis Hector, Marquis and afterwards DUKE DE VILLARS was born in 1653 at Moulins. As a youth he distinguished himself at the siege of Maestricht and the battle of Senef in 1674. Having during the ensuing peace discharged with much credit to himself the duties of ambassador at Munich in 1683, and at Vienna in 1699, he resumed arms on the breaking out of the Spanish War of Succession, and for his conduct at Friedlingen was raised on the field of battle to the dignity of a Maréchal de France. The campaigns of 1705, 1706, and 1707 further contributed to his fame, which was somewhat tarnished by his defeat at Malplaquet in 1709, and at Arleux in 1711. In 1712 he again restored his good name by the victory of Denain, and his capture of Marchennes, Douay, Le Quesney, and Boucheir, successes which resulted in the treaty of Utrecht. He died in 1734, having outlived his fame as a great general, by reason of his intense pride and his extreme cupidity. Louis François, MARQUIS DE BOUFFLERS was born in 1644 and died in 1711. Schooled into a knowledge of arms by Condé and Turenne, he contributed to the victory of Fleurus in 1690, the capture of Furnes in 1693 which secured him the *bâton* of a maréchal, the defence of Namur in 1695, the command of the army in Flanders in 1702, and the defence of Lille in 1708, completing his military career by gallantly losing the battle of Malplaquet in 1709, a loss prepared for him by his wounded senior Villars.

R. O'BYRNE.

NAVAL AND MILITARY NOTES AND QUERIES.

THE GERMAN OFFICER.—After some five months' service, having by this time thoroughly learnt his duties, and being dismissed drill, he is given the rank of a non-commissioned officer on the recommendation of his captain, and after about ten months' service is sent to one of the nine war schools (Potsdam, Metz, Andam, Neisse, Engers, Glogau, Hanover, Cassel, and Munich) with the rank of *Fähnrich*, being there instructed in tactics, fortification, and other military sub-jects. At the end of his course he rejoins his regiment, and serves as *Fähnrich*, but now wearing an officer's sword, and doing officer's duty, until a vacancy occurs among the lieutenants. His name is then submitted to a meeting of all the officers of the regiment, who have to give their votes individually for or against his admission as their comrade. If all are unanimous in his favour, he is at once recommended for a commission; but if he has only a majority of the votes, those who are opposed to his admission are called on to state their objections in writing, and a summary of these opinions is laid before the commander of the Army Corps, by whom the question is finally settled. If the majority are against the candidate and consider him unfit to become an officer, he is at once rejected, and can never hope to obtain a reversal of the decision. When a young man has once become an officer his promotion generally goes forward by seniority, always supposing that he has proved himself fit for the duties of a higher rank. His fitness in this respect is, however, not ascertained by examination as we understand that term, but by the manner in which he has executed a number of military problems, submitted to him in the course of his service, as well as by the manner in which his ordinary duties are performed. As high military training is not a matter of mere introduction in the German service, it follows that the superior officers are thoroughly conversant with every detail of their subordinates' duties, and perfectly capable of judging of their fitness for promotion; so that if an officer is considered unsuited for a rank higher than that which he holds, he will be remorselessly passed over, and no amount of interest or favouritism will enable him to reach a position in which he might, by his ignorance or inefficiency, cause or conduce to a military disaster.

R. O'BYRNE.

MODERN TACTICS.

By CAPTAIN H. R. GALL, Late 5th Fusiliers.

CHAPTER VII.—Rear-Guards.

THE ordinary rear-guard to a column advancing consists of a portion of infantry, with a detachment of cavalry or mounted police. It is a necessary precaution for the protection of stragglers and authorized camp-followers, and brings up the rear of every column of troops on the march, affording assistance and protection to trains and baggage-guards in case of breakdowns.

The duties of rear-guards of this description are often very trying, and tax the patience and good temper of those employed to the utmost, especially in bad weather with bad roads and inferior transport.

There are two other classes of rear-guards: 1st, to a force retiring for strategical or other reasons, without having given battle; 2nd, to a force retreating after a defeat.

The tactics of No. 2 class embrace those of a rear-guard of class No. 1; we will, therefore, confine ourselves to a consideration of the former.

At first sight it may appear strange that a rear-guard composed of a portion of a beaten force should be called upon to do what the whole detachment or army has failed to accomplish, viz. stop a hitherto victorious enemy. Experience, however, has shown it not only to be possible, but so generally feasible, that, unless an army remains fighting long enough to be routed before it leaves the actual field of battle, it is an accepted maxim that a rear-guard of some sort ought to be extemporized, under cover of which, and of darkness, the greater portion of the beaten troops can get off the field and reorganize more or less efficiently.

During the first moments of his final withdrawal from a field of battle, a commander looks to his cavalry to cover the retreat of his most severely exposed battalions, while at the same time he organizes a rear-guard composed of his least demoralized troops, usually taken from the general reserve, a portion of which should, if possible, always be retained in hand to meet this special contingency.

A rear-guard action calls forth the highest qualities of a tactician under the most difficult and adverse circumstances, and at no time is the discipline and fine qualities of all arms more surely tested than when called upon to co-operate in covering the retreat of a beaten force.

It may here be remarked that although the words army and general are most frequently employed throughout these chapters, on active service a knowledge of the principles of tactics is as essential to the commander of a battalion or a company as it is to a general commanding a division or an army in the field.

It was during the conduct of a rear-guard in retreat that the Duke of Wellington, then commanding the 33rd Regiment, first distinguished himself in the Low Countries. "On the 15th of September 1794 the French had, on the previous evening, seized the village of Baxtel, from which the Duke of York directed General Abercrombie, with two battalions of the Guards, four of the line, a battery of horse artillery, and a couple of squadrons of horse, to dislodge them. The English, though they attacked with gallantry, sustained a repulse, and, being closely pursued, would have been probably cut to pieces had not Colonel Wellesley, with exceeding promptness, deployed his battalion and checked the pursuers. The village was not retaken; but his judicious move arrested the enemy, and the English were enabled to continue their retreat in good order and without heavy loss."*

It was a saying of Napoleon's, "that no man was a general until he had conducted a retreat."

One of the most gallant rear-guard actions of the British army was "El Bodon," September 25th, 1811, when a force composed of 3 battalions, the 5th, 77th (British), and 21st (Portuguese), 5 squadrons—2 of the 11th Hussars and 3 of German Hussars—2 batteries of artillery, retreated for several miles in contact with a force nearly five times their strength, and covered the withdrawal from a difficult situation of three battalions, under Picton, operating on their right flank. A full account of the action of El Bodon is given in Napier's *Peninsular War*, and also in Clery's *Minor Tactics*, with a good illustration in the last-mentioned book.

This action elicited the warm approval of the Duke of Wellington, expressed in terms extremely flattering to the regiments engaged.

* Gleig's *Life of the Duke of Wellington.*

The tactics adopted by the French General, Montbrun, would not be applicable to the present day, when a force of even 2,000 cavalry could not hope to attack successfully in the open three battalions of infantry armed with breech-loaders. Modern infantry armed with breech-loaders (not repeating rifles, as they soon will be) can develop more than twenty times the amount of fire action of those days, and the assailants would now be exposed to it for a distance of a mile and a quarter in the open, in place of 600 yards as in 1811. This fact has altered altogether the relative strength of the two arms, when directly opposed to each other, to such an extent that even on open ground infantry may confidently be expected to receive cavalry extended in echelon of battalions, or even companies, without forming squares. This alters entirely the tactics of cavalry as practised prior to the introduction of the breech-loader.

Rear-guard fights, in which cavalry formerly took such a prominent part, belong rather to history than to the study of modern tactics.

Composition of Rear-Guards

must depend entirely on the nature of the country, but a rear-guard is usually composed of a force of all three arms with a portion of engineers. The cavalry and artillery, with a rear guard, should be equal in strength to the enemy's advanced cavalry and artillery sent in pursuit.

Rear Guard Tactics

are essentially defensive. All the principles of modern defence are applicable to them, especially the use of hastily-constructed field-works. Like out-posts, the mission of a rear-guard is to retard rather than to repel an enemy, to gain time rather than to inflict loss. The assumption being that any success can only be temporary, as the enemy's advanced-guard will shortly be reinforced by his main body.

The art of rear-guard fighting is—

1st. To occupy successive positions which directly cover the retreat of the columns in rear, and by taking every advantage of the natural strength of such positions, freely supplemented by artificial means, to oblige an enemy to approach them with caution.

2nd. To know when and how to withdraw without appearing to be hard pressed.

If the enemy's cavalry presses forward, a rear-guard commander should withdraw his squadrons to the flanks and, carefully masking his guns, endeavour to draw it on to his infantry, deployed and ready to receive it with well-directed volleys, delivered at "medium," or, if possible, "short" distances.

If the enemy's cavalry is beaten off, a rear-guard commander should not let his squadrons pursue, but rather open fire with his guns, bearing in mind that his cavalry has other far more important duties to perform than cutting up a few of the enemy's troopers.

The duty of the cavalry is reconnoitring widely to discover any indications of the pursuers creeping up by parallel roads to cut off the rear-guard.

A rear-guard commander should seldom engage the enemy's artillery, but, directly his infantry appears, open fire on it at the longest effective ranges to oblige it to deploy, and so gain time. A rear-guard commander can dispose of all his troops in his front line, and thus occupy a much more extended front than in the ordinary defence of a position.

Special circumstances may demand a prolonged resistance such as the defence of the approaches to a defile, a bridge, or a deep ford still to be traversed by the retreating army hampered with its sick and wounded, and possibly sorely delayed for want of sufficient transport.

On these and similar occasions rear-guard tactics scarcely differ from those used in ordinary defence, and under certain conditions a rear-guard may be directed to hold out to the last extremity, *i.e.* until it is forced to surrender.

A rear-guard defending the entrance to a defile still in front of the army it is covering will occupy a position as far in rear of the main column, as the configuration of the country, the condition of the roads, and the strength and proximity of the pursuers justifies.

At the entrance to the defile, if its flanks are accessible, the main column will leave a sufficient force of infantry and artillery to hold the flanks and command the approach, and so protect the retreat of the old rear-guard, and prevent the enemy from entering the defile with it. This affords a favourable opportunity to relieve the old rear-guard and allow it to rejoin the main column.

If the flanks of the defile are inaccessible, as in the case of very steep heights, the main body will leave a detachment in front of the entrance to cover the retreat of the rear-guard, and will construct successive barriers half-way across the defile itself to aid the rear guard in retarding the pursuers; but in this case the main defence will be in rear of the defile to crush the head of the enemy's column as it issues from it.

Care must be taken to withdraw the rear-guard quickly through a defile, or over a bridge, or causeway, as the enemy is certain to press on briskly in the hope of issuing pell-mell with the defenders, and so nullifying the defence in its rear. After passing a bridge it should be blown up. A ford should be rendered impassable. In the case of a causeway (a road over a morass) the tactics in defence are similar to those adapted to a defile with heights inaccessible, *i.e.* the main defence should be in rear of it on the side farthest from the enemy.

The withdrawal of troops left in front of it is always a difficult and dangerous operation. Across the entrance to a defile through which a force is withdrawing a deep and wide ditch should be dug, provided with a temporary bridge, and preparations made for removing or blowing up the bridge, as soon as the last of the rear-guard troops have passed over. An engineer officer, with a party of sappers, should, if possible, be told off for this special duty.

If the pursuit is slackening a rear-guard commander should send word to his main body (*i.e.* to his commander-in-chief), and still keep touch with the enemy. If the pursuit stops altogether, touch must still be maintained, and, if necessary, a detachment left to watch the enemy's movements. A rear-guard retiring over the open should be withdrawn gradually. 1st. A portion of the guns sent back to the next position. 2nd. The remainder of the guns. 3rd. The infantry in echelon of battalions; those on the most exposed flank being first withdrawn. 4th. The cavalry withdrawing slowly on the flanks.

The general line of tactics adopted by a rear-guard must depend on the special circumstances in which it is placed. If its own main body is close at hand, and much hampered with its trains, and sick and wounded, more time must be allowed it to get away, and, as under these circumstances the pursuit is likely to be vigorous, a desperate and prolonged series of rear-guard actions may be imperative.

If the country is generally favourable for defensive tatics no good opportunity should be lost of checking the pursuit; but under no circumstances should a rear-guard action be unnecessarily prolonged.

The strength of a rear-guard can only be decided on the spot. If possible a large proportion of cavalry and artillery should be detailed for this duty (unless the country is unsuited for their effective action). The cavalry to check that of the pursuit, and to reconnoitre widely to the flanks. The guns to compel the pursuers to deploy at a distance.

Plate I. illustrates an imaginary rear-guard action.

Reading of the Map.—The River Don is unfordable below its junction with the River Dee; above this point it is fordable with difficulty. The River Dee is fordable. The country east of the Don and south of the Dee is hilly and cultivated; the nearest road, leading south, is three miles off the map—Scale, one and a half inches to the mile. Contours 80 feet.

Disposition.

A division, war strength, forming the rear-guard of a beaten army in retreat, has had severe fighting, and withdrawn over the River Don, destroying the bridges at Wear and Hoe.

The division is hampered with 500 wounded, and is badly off for transport.

At 6.45 A.M. it is reported to the General commanding that the bridge over the Don, at Stobridge, is broken, and the engineers (short of material and tools) require three hours to repair it.

At 7 A.M. the enemy's cavalry and horse artillery appear on the roads leading to Wear Bridge and Hoe Bridge, and at 7.45 A.M. his infantry and artillery are observed moving in a south-easterly direction towards Claton. It is evident that, having discovered that the bridges of Wear and Hoe have been blown up, he intends crossing the River Dee near Claton.

The General commanding the rear-guard division makes the following dispositions:—Field hospital, ambulance, provision trains, 1½ batteries with their waggons, artillery waggons, 2nd Line, ammunition carts, baggage, and Nos. V. and VI. Battalions (which have suffered most severely in the previous day's fighting) to push on, and mass near the bridge over the Don north-west of Stobridge. No. VII. Battalion is sent forward to assist in repairing the bridge, and to occupy the south bank of the river in front of Stobridge after placing the village into a hasty state of defence.

Cavalry.

One squadron in observation on left flank at Wear; 1 troop as escort to the half battery on A hill; 1½ squadrons behind hill F, south-east of Clayton; 1 troop to watch River Dee, east of Clayton; ½ troop to destroy Reay Bridge, and watch road east of Reay Farm; ½ troop to watch Stobridge–Sale Road.

Artillery.

Half battery on A hill, with orders if molested by enemy's sharpshooters to retire to D hill (where an epaulment is thrown up). This half battery is instructed to withdraw in any case as soon as the enemy has crossed the Dee and is out of range. Half battery on B hill; half battery on C hill, facing north or east, according to enemy's dispositions. An epaulment is made on E hill for these two half batteries to withdraw to, half a battery at a time.

Infantry.

No. I. battalion, C hill, entrenched; No. II. battalion, B hill, entrenched with two companies, skirmishing along south bank of Don, to protect guns on A hill from enemy's sharp-shooters if they creep forward; No. III. battalion, north slopes of E range of heights entrenched, two companies entrenched in rear of wood H; No. IV. battalion, lining east side of road leading over north-east slopes of D range of heights. The assumption being that Nos. I. and II. Battalions will delay the

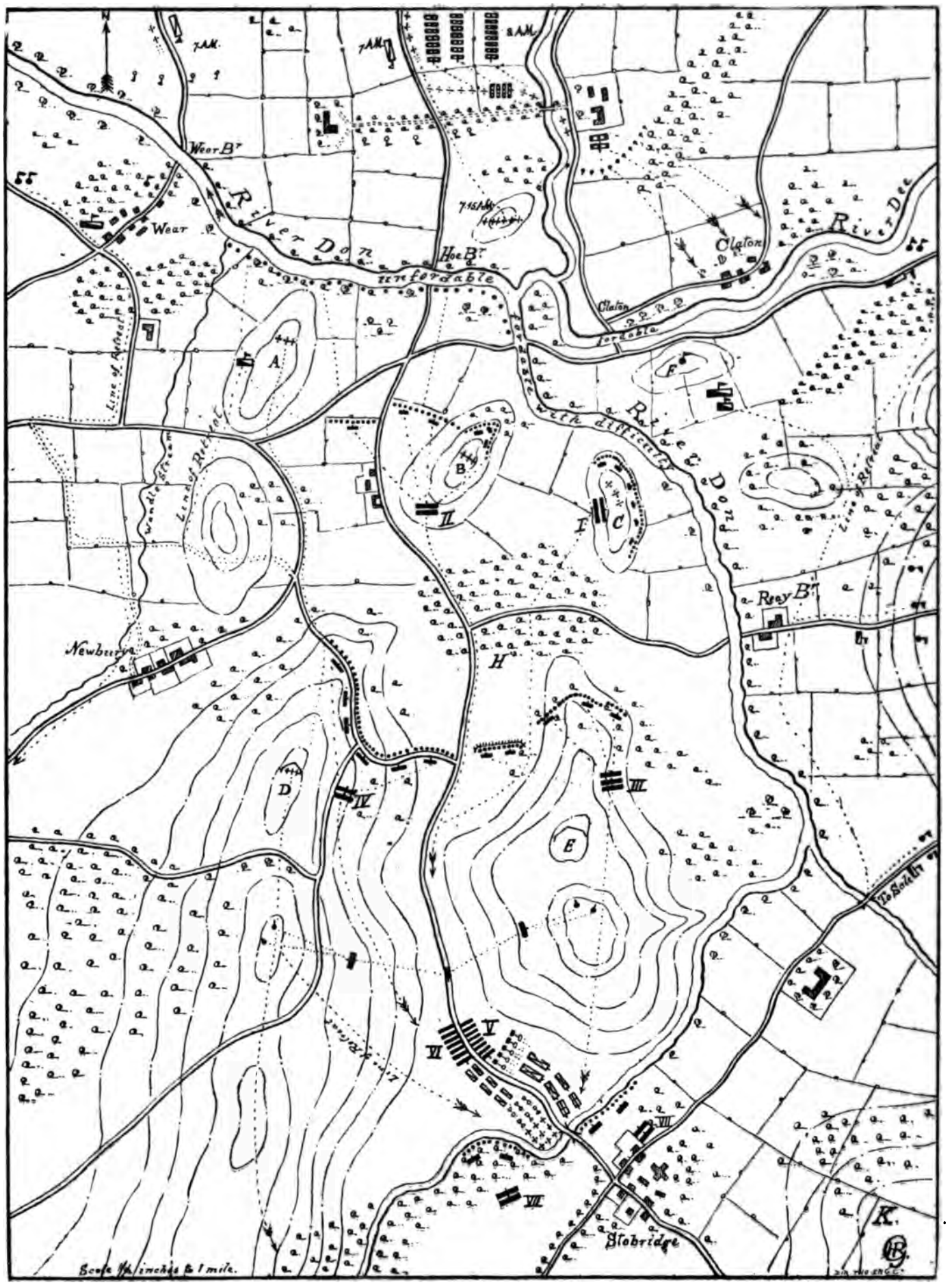

7 AM.
Weir B.r
River Don
Weir
Hoe B.r
Impassable
Clafton
Clafton
River Dee
Impassable with difficulty
River Don
Line of Retreat
Wandle Stream
Line of Retreat
Roey B.r
Newburgh
A
B
C
D
E
F
H
I
II
III
IV
V
VI
VII
VIII
Slobridge
K
Scale 16 inches to 1 mile.

PLATE I.

enemy for two hours, or as long as possible, and then fall back under cover of the guns withdrawn to E and D positions, and No. III. and IV. Battalions posted as above stated. The final retirement will be over the heights marked D and E to Stobridge, under cover of the other battery and a half, which, when they get over the river will be posted on K hill, east of Stobridge.

CHAPTER VIII.—Marches.

Marches may be conveniently divided under the following seven headings :—

1. Timed Marches.
2. The Order of March on East Road.
3. Rules as to Halts.
4. The Use of several Parallel Roads.
5. Night Marches.
6. Flank Marches.
7. Forced Marches.

Timed Marches.

The object of "Timed Marches," is to get troops to the right place, at the right time, in the most efficient condition. To ensure this, the roads must be examined, and the country carefully reconnoitred ; calculations of time depending on fixed rules are misleading. The effect on a country generally, and especially on roads, rivers, streams, and mountain paths resulting from severe storms, heavy rain, continued drought, frost, or snow, must always be taken into consideration ; but, above all, the probabilities of obstruction and resistance likely to be met with must be carefully weighed, and an ample margin of safety provided for.

In 1877 the principal roads in Bulgaria were in good condition at the beginning of the campaign, but later on they were much cut up by the passage of heavy artillery and transport trains, and the failure to repair the damage caused by them. The country roads connecting villages were passable during the summer, but when the autumn rains came on in September, they soon became quite impassable.

General Gourko, in his famous reconnaissance, July 12th to 19th, 1877, notwithstanding his carefully-planned and skilfully-executed march over the Balkans, under-rated the resistance he was likely to meet with from the Turks on the southern side, and arrived too late by one day to take part in the combined attack on the Shipka Pass, which he had planned to take place on the 17th July, in conjunction with a force attacking from the north side. An example of over-confidence, which resulted in two completely isolated and unsuccessful attempts to capture the pass, one from the north, and the other from the south side of the Shipka ridge, within thirty-six hours of each other. Although Gourko was able to push forward with his cavalry, his infantry, after encountering and overcoming severe resistance on the road, was worn out and completely exhausted.

General Gourko took with him only pack-animals, and carried five days' rations, and three days' forage, but managed to live almost entirely on the country as soon as he got over the mountains.

The first day's march was 18 miles, the next day Gourko marched 27 miles, and after a march of 9 miles he secured the southern outlet of the Hainkioi Pass by 10 o'clock on the morning of the third day, surprising and overpowering the Turkish garrison at Hainkioi. When the difficulties of the road are considered, this was one of the most daring and surprisingly rapid marches on record. Where Gourko crossed, the summit of the Balkans is 3,700 feet, of which 1,900 feet has to be ascended in the last eight miles, while on the southern slope the path descended in twelve miles 2,300 feet, over the greater part of which twenty miles the guns had to be dragged by the infantry. Two guns with their teams rolled down the ravine. The path, which was nothing but a mountain trail, was opened out in two days sufficiently to let the guns pass, by a squadron of mounted pioneers (Cossacks), superintended by Major-General Rauch, an Engineer officer.

In the Kyber Pass, 1878–79, the transport consisted chiefly of camels, ponies, and mules, supplemented as the road was opened out by bullock-carts, and a few elephants. The difficulties of making a road in places were very great, and necessitated a large amount of blasting. During the return march after the first campaign, the thermometer frequently registered 120 degrees at eight o'clock in the evening. The mortality amongst the transport animals was appalling, and in the vicinity of the camps there was a veritable Golgotha, the stench from which was awful, and produced cholera and other malignant diseases, which the troops carried with them on their homeward march. In places the pass was knee-deep in dust, and covered with large loose stones worked up by the constant traffic, and for weeks dust storms prevailed without much intermission, day and night.

The removal of the dead camels even to a few hundred yards outside the camps was a work of incessant labour and toil. In spite of these difficulties, from twelve to fourteen miles a day was perfo e convoys were continually more or less ha never seriously delayed by the hostile the route.

Keeping up the long and difficult l cations between Kabul and Peshaw 190 miles, was not the least ard

second campaign; when all duties were provided for the men got very little rest. During the campaigns 1878–79–80 some regiments employed on the line of communications were under canvas without intermission for twenty-two months.

"Plevna fell on the 10th of December, 1877, and the Russian reinforcements for General Gourko commenced their march to Orkhanie, a distance of 75 miles, on the 14th, and arrived there between the 20th and 23rd of December.

"From the 18th to the 22nd snow fell with little intermission, and on the night of the 19th–20th the temperature fell to 3° Fahr. The roads then became an alternation of smooth ice and frozen masses of mud ten inches in diameter, and hard enough to resist even artillery wheels. None of the horses were rough shod, the little Steppe horses of the intendance waggons were not shod at all. The result was that at every hill the waggons had to be hauled and pushed up by hand."*

In 1880 General Roberts marched from Kabul to Kandahar (321 miles) in 23 days, averaging 14 miles a day; his force was composed of 7,500 infantry, 1,600 cavalry, 18 mountain guns (7 prs.) Everything was carried on pack-animals, including the guns. He had with him about 8,000 camp-followers making a total of about 18,000 men and 9,000 animals. There was no opposition, and the crops were standing. The road had been previously traversed by General Donald Stewart's force.

This memorable march was carried out by a force "marching in the air," *i.e.* it had no base and no assured line of retreat; and was entirely dependent on the country for its supplies. General Roberts not only relieved Kandahar, but defeated Ayub Khan.

Experience and a knowledge of tactics may enable a commander to meet unforeseen difficulties as they present themselves; but careful reconnaissances will aid him materially under all circumstances to form an approximate idea of the time his troops will need to overcome whatever obstacles nature or man's ingenuity may put in his path. The chief difficulty a general has to contend with when marching an army in the field is "Transport." Railroads may carry him to a certain point, and there leave him completely at the mercy of such transport as the country (perhaps an openly hostile one) affords—horse-waggons, bullock-carts, elephants, camels, ponies and mules, coolies, steamers, boats. All these different means of transport necessitate different calculations of time, and a knowledge of their special requirements.

Infantry must always regulate the pace of a column comprising the three arms. An army can march rapidly or slowly, according to the efficiency of its infantry and its transport. The infantry soldier in the field has to carry, in addition to his usual kit extra ammunition, entrenching tools, rations. The even distribution of this extra weight has to be provided for.

To avoid unnecessary fatigue, the following points should be observed. No unnecessary parading either before starting, or at the end of a march. A steady long pace which never ought to exceed 3¼ miles an hour. An average of 3 miles an hour is very good marching. Regular and satisfactory halts. Even distribution of duties, advance-guard, outpost, baggage-guard, foraging, convoy and rear-guard. Regular duty rosters. Length of marches to be regulated by the nature of the country, and the state of the roads and means of transport. Weather and climate to be considered. Troops should never march without hot coffee and bread being served out to them if possible before starting; if not, they should take the coffee in their canteens cold, and be allowed to warm it up during a halt.

When troops are conveyed long distances by rail a certain number of non-smoking compartments should be marked per troop or company. This especially applies to volunteers, a considerable percentage of whom are either non-smokers or moderate smokers. The inconvenience suffered by non-smokers cooped up in an over-crowded third-class carriage reeking with tobacco smoke is unnecessary.

Mutton fat or grease of some sort should be regularly served out, and the men encouraged to grease their boots, inside and outside, frequently, especially in dry weather. Badly-fitting and badly-darned socks are too often the cause of discomfort and sore feet.

In hot climates the absence or presence of water, within reasonable distance of the road, will influence a commander, and often induce him to take a longer route to secure a sufficient supply. Water may be carried for men, but seldom in sufficient quantity for animals. The length of columns should be reduced as much as possible, with a view to lessening fatigue. In an average country, with good roads, 12 miles is an ordinary day's march, 15 miles a good march, and 20 miles a forced march.

Marching and Fighting Endurance of Troops.

In his remarks on the winter campaign in Bulgaria, 1877–78, Lieutenant Greene, U. S. Army, after stating that it was the winter campaign of the Russians which destroyed the military strength of Turkey, and pointing out how much Russia owes to the generals who conducted it, writes as follows:—

"The great and pre-eminent cause of their success lay in the almost boundless patience and endurance of

* Gourko's Passage of the Balkans. Greene's *Russian Army and its Campaigns in Turkey, 1877–78.*

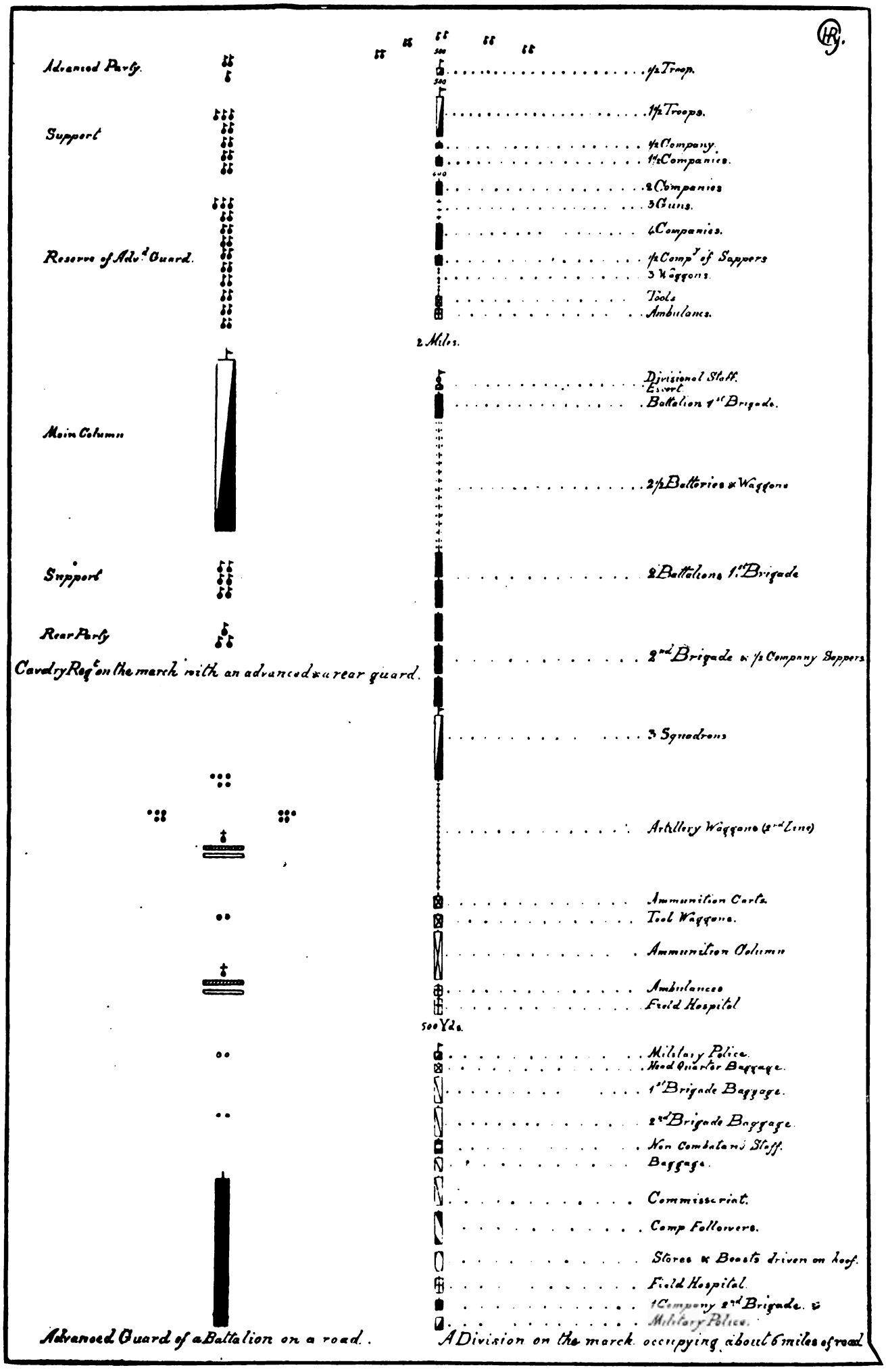

Advanced Party.
Support
Reserve of Adv.d Guard.
Main Column
Support
Rear Party
Cavalry Reg.t on the march with an advanced & a rear guard.
Advanced Guard of a Battalion on a road.
½ Troop.
1½ Troops.
½ Company.
1½ Companies.
2 Companies
3 Guns.
4 Companies.
½ Comp.y of Sappers
3 Waggons.
Tools
Ambulances.
2 Miles.
Divisional Staff.
Escort
Battalion 1.st Brigade.
2½ Batteries & Waggons
2 Battalions 1.st Brigade
2.nd Brigade & ½ Company Sappers
3 Squadrons
Artillery Waggons (2.nd Line)
Ammunition Carts.
Tool Waggons.
Ammunition Column
Ambulances
Field Hospital
500 Yds.
Military Police.
Head Quarter Baggage.
1.st Brigade Baggage.
2.nd Brigade Baggage.
Non Combatant Staff.
Baggage.
Commissariat.
Camp Followers.
Stores & Beasts driven on hoof.
Field Hospital
1 Company 2.nd Brigade. &
Military Police.
A Division on the march occupying about 6 miles of road.

PLATE II.

the Russian soldier. From the time the movement was well under way (14th December, Plevna having fallen on the 10th), the men never saw their knapsacks, which remained north of the Balkans, till some time after the armistice.

"They marched and fought and slept in snow and ice, and forded rivers with the thermometer at zero. They had no blankets, and the frozen ground precluded all idea of tents; the half worn-out shelter tents which the men had used during the summer were now cut up to tie round their boots, which were approaching dissolution; and although an effort was made to shelter the men in the huts in the villages, yet always at least half of them had to sleep out in the open air without shelter.

"Their clothing at night was the same as in the day, and it differed from that of summer only in the addition of overcoat, woollen jacket, and a 'bashlik,' or woollen muffler for the head. Their food was a pound of hard bread and a pound and a half of tough, stringy beef, driven along the road; they were forced to carry six and seven days' rations on their backs (in addition to an extra supply of cartridges in their pockets); there was more than one instance where the men fought, and fought well, not only without breakfast, but without having tasted food for twenty-four hours. Yet in the face of these unusual privations and hardships, there was not a single case of insubordination; the men were usually in good spirits, and the number of stragglers on the march was far less than during the heat of the preceding summer."

The effect on the health of the men is thus described by Lieutenant Greene in another paragraph:—

"Gourko lost about 2,000 men *hors de combat*, from freezing, during the storm of December 18th–23rd, before his movement began. During the movement Dandeville's column lost about 1,000 more. At Shipka the 24th Division lost over 6,000 men (80 per cent. of its strength) during the same storm, and was, for the moment, completely disorganized and useless. After the march fairly began there were several hundreds more or less who gave way under the cold or were frozen, but the number was not very great—not so much greater than the sunstroke and diarrhœa cases in the terrible heat of summer, as to be particularly noticeable.

"In this march (as in most campaigns) bad food and the lack of change of clothing laid the seeds of typhus and typhoid fevers, which broken out at San Stefano in the following month of May, with such terrible malignity that at one time 50,000 men—45 per cent. of the whole force stationed thereabout—were in the hospitals."*

* *The Russian Army and its Campaigns in Turkey*, 1877-78. By F. V. Greene, U. S. Army.

The Order of March on Each Road

depends on whether the enemy is near or distant. If near, troops must march prepared for action; in which case every column will have its advanced-guard, and a good rough rule for the order of march of the main body is—

(1.) One-third of the infantry leading.
(2.) Artillery.
(3.) Remainder of infantry.
(4.) Cavalry.

One-third of infantry leading, in order to protect the guns from ambuscade in the event of the advanced-guard missing their way in a mountainous country in the dark, or in any country during a snowstorm. Next the guns, because, under ordinary circumstances, either in attack or defence, they are the first to come into action. The remainder of the infantry and the cavalry last, as they are useless on a road, and can be quickly transferred to any part of the field they are wanted.

If the enemy be distant, the convenience of the troops need only be consulted. If possible a separate road should be told off to each arm; the shortest to the infantry, the hardest to the artillery, and the softest to the cavalry; each column, preceded by its own advanced-guard, and so timed that all arrive about the same time at the new halting-ground.

If only one road is available, the cavalry and artillery should march first, as their work commences when they reach camp, and the infantry should follow at a convenient distance (*vide* PLATE II., Order of March of a Complete Division in the Field).

Rules as to Halts.

The first halt should take place about half an hour after starting, and should be for a quarter of an hour, to enable the men to re-arrange their belts, valises, &c., often put on hastily after striking the camp and packing the baggage. If the march is under 14 miles, halt for half an hour half way; if over 14 miles, halt for half an hour every two hours. This is the German rule. Never halt in villages or short defiles, and, when halted, invariably throw out videttes and sentries, and, if the halt is of any duration, and the men break off and are allowed to take off their accoutrements, outposts should be posted if there is even a remote possibility of surprise.

Avoid old camping-grounds if possible. If the men are very tired and have to be up at daybreak, provide cover for the perishable baggage, and let the troops bivouack.

Use of Several Parallel Roads.

Marching on parallel roads opens out a wider area of country, and consequently facilitates supplies, reduces the length of columns, and is conducive to increased

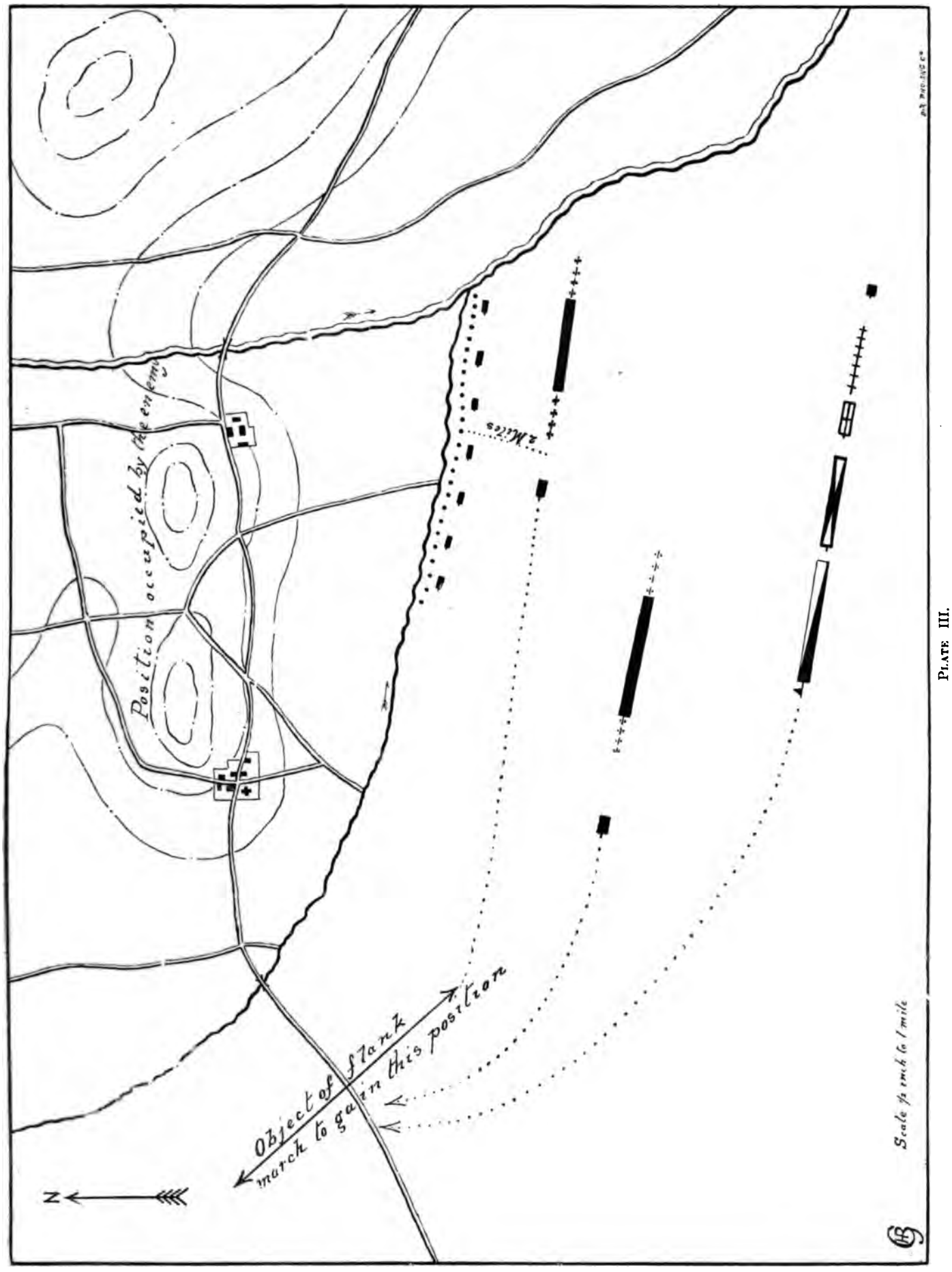

Position occupied by the enemy
2 Miles
Object of flank march to gain this position
N
Scale 4 inch to 1 mile

PLATE III.

Q 2

speed with lessened fatigue, enables the heads of columns to be more easily reached, facilitates deployments.

Free communication must, however, exist between the different columns marching on parallel roads, or they are liable to become isolated and to be beaten in detail.

Night-Marches,

as a rule, should be avoided; they render men unfit to fight next day, and are liable to panic, and many unavoidable delays and annoyances. They are admissible in hot climates, or as preliminary to a daybreak attack upon an enemy who will probably not wait to be attacked if he gets warning.

Precautions.—Reconnoitre and mark the cross-roads, and paths if possible, procure reliable guides, keep the men unloaded and in the ranks at all costs, with strong advanced and rear guards. No detached parties. Halts to be named for certain hours not places.

In all calculations of time required, allow an ample margin for unforeseen delays.

Flank Marches.

A flank march is one in which a flank is exposed to the enemy. It is, therefore, very dangerous when within striking distance, say half a day's march.

Precautions.—Reconnoitre the country in front and on the exposed flank. Keep natural obstacles, rivers, defiles, &c. between the nearest column and the enemy, and a flank-guard, composed of infantry, in the formation of outposts moving to a flank about two miles from the most exposed column between it and the enemy.

Order of March.

Columns in echelon, advancing from the flank farthest from the enemy, with artillery at the head and tail of each column, advanced and rear guards, composed entirely of infantry. As secresy is essential, the cavalry, baggage, trains, &c. should be kept on the flank farthest from the enemy, on a separate road if possible (*vide* PLATE III.).

H. R. G.

NAVAL AND MILITARY NOTES AND QUERIES.

NAVAL STRATEGY AND TACTICS.—The following is noteworthy: An immense sum is spent annually at the Royal Naval College for the education of our naval officers, but naval strategy and tactics have no place in the curriculum, yet they are the most important subjects of naval science. We may have the best ships and the best drilled officers and men, yet these advantages will be wilfully scattered to the winds if there is not in the service generally an exact appreciation and knowledge of the conditions under which the naval operations of the day will have to be entered upon and carried out. To attain this means intelligent study and careful provision for the exactions of war during the times of peace. We are now able to define strictly the powers of every single arm; each ship and vessel has definite motive and manœuvring powers, definite coal-carrying capacity, can act at definite distances and over definite areas Coal-supply is the most important factor we have to deal with. Neither ships nor squadrons can operate without bases; bases mean lines of communication, both at the remote and immediate base, involving questions concerning their protection and defence. Blockade, and the tactics of a fleet or squadron in presence of another fleet or squadron of superior or inferior power or speed are equally capable of definition, and are of vital import to us. Together, these and many other questions raise the art of warfare at sea alongside of, and to the level of, the art of warfare on shore The Army has its text book of the science, and it is taught in all military training schools, while in the Navy we have not yet reached the consideration of first principles. It is time, surely, to take a fresh departure in this matter; if so, the first step that suggests itself is the collection and collation by a competent officer of the mass of material at hand into a form useful for the instruction of others. The knowledge so gained can be best diffused by a course of lectures to be given annually at the Royal Naval College, and practice, when necessary, can be carried out in the several squadrons when opportunities occur. This part of naval science is as worthy attention and teaching as any other part, and it is as true of this as of any other subject, that it cannot be acquired without systematic instruction.

R. O'BYRNE.

GENERAL BOULANGER:

HIS INFLUENCE ON THE FRENCH ARMY.

By LIEUT.-COLONEL A. L'ESTRANGE.

CHAPTER I.—His Early Career.

DURING the days of the Commune in 1871 a company at Bourg-la-Reine, under a young lieutenant, was ordered to carry with the bayonet a barricade which commanded the Paris road. The men were out of cartridges and the officer knew that the deed when done would be rewarded by the coveted Cross of the Legion of Honour. The lieutenant, on falling-in his men, was disconcerted to find his colonel come on the scene, but he was in undress with a cane in his hand, and only attended *en amateur*. It was the dusk of the evening, and the little party advanced stealthily, taking advantage of cover until within range of the Communists. Suddenly the sentry at the barricade challenged "*Qui va là?*" "We must rush on them now," said the lieutenant to his colonel, "but we shall lose a number of men." "No occasion," replied the commander; "I'll rush forward by myself, they'll fire at me, and probably miss me, and, before they can reload, take your men up at the double." This brave officer exposed himself to the rifles of the Communists, and, as he predicted, a volley missed him. Before the smoke cleared, the lieutenant was through the barricade, which he carried with the loss of one man. The colonel spoken of is now General Boulanger, ex-French Minister of War.

The amount of hero-worship that has been lavished on General Boulanger during the past month is possibly unprecedented in history. During the Homeric period any king, prince, or leader in battle, or one who distinguished himself above his companions as a brave warrior, or in wisdom or in science, was fabled to be of divine origin, had untold honours heaped upon him, and after death was worshipped as a deity by those cities or races of men that claimed him as founder or ancestor. Thus Perseus, Theseus, and other warriors of mythological history, were called heroes, and their greatness and glory were held up to the example and admiration of all the Greeks. Bravery in itself seldom induced hero-worship; with it must have been combined many other qualities which distinguish a man from other warriors. Napoleon and Washington are instances. To the former, perhaps, no parallel can be found if we search the annals of the whole human race. For though the conquests of Alexander were more extensive, and the matchless character of Cæsar was embellished by more various accomplishments, yet the military genius of the Great Captain shines with a lustre peculiarly its own, when we reflect that he never had to contend with adversaries inferior to himself in civilization or discipline, but won all his triumphs over hosts as well ordered and regularly marshalled and amply provided as his own. In General Boulanger, however, we see



General Boulanger.

merely a brave French officer, whose highest rank in the field was that of colonel, worshipped as a demigod by the civil and military element alike for no very apparent cause.

The great street pronunciamento which took place in Paris last month in favour of an individual soldier and against the Government which is supposed to have treated him ill was, so far as it went, a demonstration against Germany, and an exponent of the doctrine of La Revanche. The ambiguity of General Boulanger's

position is the more apparent when considered that he disclaims being the Apostle of Revenge, but he would be more than mortal were he to preserve his mental equilibrium in face of the mad worship accorded him. The French nation appears to be pursuing the old sad round which leads, by adoration of a popular idol, to military dictatorship and its disastrous consequences. Boulanger was not born great, nor has he achieved greatness, but nevertheless greatness is being very forcibly thrust upon him. France, now that her military strength appears regained, is again adoring a fetish of the old stamp—a Napoleon of the barracks, whom success would make an Emperor, and failure an outcast and victim. A Parisian journal writes: "Boulanger the Man is he whom the public acclaim, not Boulanger the Republican. The chief sources of his overwhelming popularity are the frightful unpopularity of the Chamber, and the contempt that is generally felt for the Government; for our people anew feel the want of incarnating the Government in one man."



HOSTAGES ESCORTED BY MACMAHON'S TROOPS.

In view of General Boulanger's deification we propose to trace his military career—the events of which are derived from authentic sources.

Georges Ernest Jean Marie Boulanger was born at Rennes, 29th April 1837. His father was a barrister in good practice in Paris. He sent his son for his early education to the Lycée of Nantes, an institution which has turned out many remarkable and distinguished Frenchmen, whence he was transferred to St. Cyr on the 15th January 1855. The Crimean War having caused an abnormal demand for officers, young Boulanger and many other St. Cyriens were gazetted to commissioned rank in October 1856, and he was posted to the 1st Regiment of Algerian Tirailleurs. This was a *corps d'élite* raised by the Duke of Dalmatia, when War Minister under Louis Philippe. It did good service in the Crimean War, and on its return was soon actively engaged in what is called the Grande Kabylie Campaign. The expedition was conducted by Marshal Randon, and had for its objects the subjugation of a powerful and valiant tribe. Boulanger on joining his regiment, with two other comrades from St. Cyr, was badly received—not by the officers but by the non-commissioned officers, who expected the three commissions to have been filled from their ranks. The expression of feeling at one time threatened to be serious, but it came to nothing, for the regiment was ordered to the front.

Early in 1857 the 1st Algerian Tirailleurs took the field, and two of its companies, with young Boulanger, were detached and joined to the Yusuf Division. The difficulties of the enterprise were so great that the old soldiers of the Crimea, who had taken part in the assault upon Sebastopol, shook their heads on looking at the Kabylie contingents paraded on heights almost inaccessible, and said to one another, "To try to reach those up there is folly, for it 's impossible."

Soug-el-Arbâa was the objective. It is situated in the centre of the country of the Aït-Traten, a most powerful and hostile tribe whose subjugation was desired. The French troops were formed about eight hundred yards beneath the heights, which are broken into three spurs, with rugged crest, steep, and bristling with sharp

peaks, natural fortifications of breast-works of rocks, impassable thickets, and deep ravines. Without even a path to guide them, the French troops were called upon to scale these formidable heights defended by brave and warlike Kabylees, active, good shots, and well armed.

The attack began 24th May 1857, at 5 A.M. Renault's division advanced on a village halfway up the slope, while the other divisions operated on other points. The advance was slow and fraught with difficulty. The growth of herbage was long, and in itself a serious obstacle, while the brushwood in parts was simply impenetrable. After a long and punishing march, the French at length arrived within view of the enemy and plainly discerned the Kabylees crouched behind their entrenchments, their muskets cocked, waiting for the most favourable moment to fire. The French with almost superhuman efforts had dragged some guns up the rugged heights. They opened fire with shells, which searched out the Kabylees behind their entrenchments and swept the brushwood. The effect was miraculous. The village was quickly taken at the point of the bayonet, and a number of hostages marched down to the rear. Difficulties increased, however, at each step of the advance. The slopes were steeper, the thickets denser, and the brushwood stronger. The Kabylees took every advantage of these natural obstacles, and disputed every yard with the French, as they toiled up the heights. The Algerian Tirailleurs distinguished themselves on this occasion by their admirable intrepidity and irresistible *élan*. The two companies above mentioned, to which sub-lieutenant Boulanger was attached, had the honour of carrying the crowning height of Irdjeu, the most important position where the Aït-Iraten were most strongly fortified.

But the fighting was not over. The neighbouring tribes remained hostile, and refused to submit. In July of the same year an attack was planned against the strong hold of Djurjara, which presented almost insurmountable obstacles.

None engaged in the attack will ever forget that memorable night. The troops fell in at 10 P.M., and imperative orders were issued that the most profound silence was to be maintained. Swords and bayonets were strapped fast so as not to jangle, and smoking was preremptorily interdicted. On the attacking force was impressed the necessity of the utmost precaution, and to each man individually was explained the fact that the success of the expedition would be ruined by his own disobedience of orders. It was arranged that on arrival at the heights, a bonfire lighted was to be the signal for the general attack. The troops were put in motion at 11 P.M., having for guides two natives, and noiselessly they began to climb the rocky acclivities between them and the enemy. The march was beset with difficulties. Locked hand in hand, the men pulled themselves up craggy eminences, or hauled each other from deep ravines—old water-courses formed by the rains and melted snow of the past season. Yet not a word was spoken, not a murmur heard, not an oath uttered, as they struggled with untold difficulties in their march of fifteen miles. As each party gained the heights they knew not their whereabouts nor the position of their comrades. All around was stony ground, probably held by the enemy. Were the guides to be depended upon? Might they not have led them into an ambush? The darkest hour before the dawn began to wear away, and grey morn was breaking, but the signal-fire was not lighted. The Aït-Melikede, guarding the position,



GENERAL RENAULT.

it was known, only occupied it by day, never dreaming of the possibility of a night attack. In ten minutes more they would be at their posts, and, with their knowledge of the locality and appreciation of the situation, the enterprise might end fatally to the French. When anxiety, however, was at its height, the signal flame burst forth, and the French, without a moment's delay, rushed on the position. The sudden surprise demoralized the brave defenders, who subsequently said, "It was impossible to fight with men who could go by night where eagles only found their way by day."

The victory was decisive, and from that day the French flag has floated over Algeria from La Calle to Dje Mäa-Gha Zaouat.

Again the two companies to which Boulanger was attached were foremost in the fray, and speaking of the regiment to which they belonged, Marshal Randon published the following in general orders on the termination of the campaign :—

"The 1st Regiment of Algerian Tirailleurs may justly be proud of the part they have taken in the brilliant campaign of La Grande Kabylie. Always to the front, they have invariably enjoyed the perilous honour of showing the way of glory to the national troops of France. With their blood they have watered the road cut by them through rugged mountains. They know how to die when France demands the sacrifice, and have evinced in the highest degree two of the most admirable virtues : Fighting without fear, and falling without a murmur."

In this school Sub-Lieutenant Boulanger learned his first lessons in warfare, under Randon, Renault, and MacMahon, three names for ever to be associated with the many glories and achievements of the French Army.



Encampment of Renault's Division before Bordj-Fizi-Ouzon.

CHAPTER II.—The Campaign in Italy.

On the 14th January 1858, Europe was startled by the news that an attempt had been made by four Italians to assassinate the Emperor and the Empress of the French in Paris, while on their way to the Opera. The Royal party escaped unhurt, but five persons were killed, and about sixty wounded, by the hand grenades that were exploded. The conspirators, Orsini, Pieri, Rudio, and Gomez were arrested, and the two first were executed for the crime. These men evidently regarded Louis Napoleon as the great hindrance to the emancipation of their country.

Those who trace effect from cause, will see in the above incident the *teterrima belli causa* which produced the Franco-Austrian War. Affairs in Italy occupied the attention of the French Cabinet, and the Emperor of the French promised King Victor Emmanuel his old ally before Sebastopol, that he would defend him against any aggression on the part of Austria.

Towards the close of the year unfriendly feelings began to be manifested between France and Austria, and on the 1st January 1859 the French Emperor addressed a few words to the Austrian Minister, which were understood to imply the possibility of a rupture. The marriage of Prince Napoleon, son of Jerome, to the daughter of the King of Sardinia, which took place about this time, by no means lessened the alarm of Europe as to the approach of war. Hostilities began on the 29th April, when the Austrians crossed the Ticino. As in the Crimean Campaign, the army of Africa was called upon to furnish volunteers. Eleven hundred were asked for, and twice that number enrolled their names. Sub-lieutenant Boulanger was foremost to volunteer along with his old St. Cyrien comrade, Sub-lieutenant Juffe. The battalion left Blidau the 19th April, and, landing at Genoa, were posted to the first division of the Second Army Corps, commanded by General MacMahon.

The Algerian troops had the honour of being in the van and showing the way all through the campaign. Boulanger fell severely wounded in the very first attack,

on the 3rd June, and for long his life was despaired of. The circumstance is thus narrated by M. Barbon:—

"General MacMahon reconnoitring the ground from the church steeple of Robecchetto, detected an Austrian column about one thousand strong advancing in his direction, and immediately ordered General de La Motterouge to attack them with the Algerian troops. The road was flanked by mulberry trees supporting luxuriant vines affording dense cover to those behind. So rapid was the advance of the leading company that unsupported they suddenly found themselves surrounded by Austrians who called upon them to surrender, but the main body quickly coming up altered the complexion of affairs, and a total rout of the Austrians ensued. This was the first brush the Austrians had with the Algerian troops, and in it four French officers were killed. Boulanger was severely wounded in the chest, the bullet having grazed the lung. Through the tender care of his mother who nursed him he slowly recovered, and when convalescent was sent to France. He received the Cross of the Legion of Honour for the affair at Robecchetto, and had the satisfaction of seeing the French army enter Paris victorious from the Italian Campaign."



MARSHAL RANDON.

(To be continued.)

OUR INDIAN MILITARY STATIONS.

By STAFF-SURGEON JAMES C. DICKINSON.

DELHI.

THIS celebrated city of palaces and mosques was the one from which issued those Sunnuds to whom every native state yielded prompt obedience. From the gates of Imperial Delhi, year by year, proceeded great armies, led by accomplished generals, whose object was the subjugation of the Hindoo power yet held by the brave Mahratta princes, and by whom heavy sieges were laid to the strongest forts of the hill countries of Western India. And while great armies went forth year by year, as the cold season began, the Mogul Emperors ceased not, with all the prodigal luxury of Mohammedan taste, to beautify the noble city of Delhi.

Gardens must be pictured therein, full of shading trees, brilliant flowers, and lovely fountains of white marble, that cast up their bright waters among shining palaces adorned with sculptured mosques and minarets like obelisks of pearl, shooting into a sky whose colour would shame the brightest turquoise that ever graced a Sultan's finger. Add to these, lines of elephants gaily caparisoned, their large ears painted, their trunks decorated with gold rings, their legs with anklets of silver, their heads bearing large square curtained howdahs, in which recline, possibly, the favourites of the harem.

Delhi is the principal place of the British district of the same name under the lieutenant generalship of the N.W. Provinces. The site of the present city is a low rocky range, about a mile from the right bank of the Jumna, and on an off-set of that river which leaves the main stream five miles above the town, and rejoins it two miles below.

The present city, founded by Shah Jehan in 1631, is about seven miles in circumference, and is enclosed on three sides by a fine wall, which is interrupted towards the river. In the walls are eleven gates. The streets are for the most part narrow. The Chândni Chouk or Silver Street, the principal thoroughfare, which runs north and south from the gate of the Palace to the Delhi Gate of the city, is three-quarters of a mile in length, fifty yards wide, and has good shops on both sides. It is also remarkably clean, a small raised water-course flowing down the middle of the street in a channel of red stone. In the Chândni Chouk lived the famous merchant Manikchund, to whose shop all visitors went, either to purchase or look at the shawls from Srinuggur, or at the dazzling webs from the looms of the north, the brocades, kincobs, jewellery, miniature paintings on ivory, carpets, and heaps of bracelets, necklaces, ear-rings, and filagree work of gold and silver. Even now the best dancing women, the bird tamers, the snake charmers, the Persian musicians, the jugglers, congregate here from every part, not only of India, but of Asia. Hundreds of romances might be written of the lives of men and women who, from this degraded class, became Court favourites, and by their ready wit, personal beauty and dark intrigues, ruled where they were wont to serve. Of course Delhi, as the city of the Mogul, swarms with religious devotees of every denomination, whether Hindoos, or Mohammedans, Fakirs, Togees, Gosh-na-sheens, and with vagabonds of every kind. The intolerable fanaticism prior to the Mutiny, as far as Mohammedans were concerned, exceeded that of any other part of India, and therefore the feeling which animated the mutinous soldiery was scarcely to be wondered at, urged on as they doubtless were by their syuds and fanatical leaders.

The scene of the terrible revolt on the north-west frontier of the British possessions in India is one of the most interesting in Asia, both as affecting the history of the Mohammedan conquest of the land, the pomp and pageantry of barbaric rule which succeeded that conquest, and its modern aspect in European occupation, retaining, as it does, a greater portion of eastern characteristic than any other part of British India; while the conveniences and luxuries of European social life are to be nowhere more enjoyed than at Delhi.

Delhi is an enormously large native city, just in a Mohammedan sense to India what Rome was to Italy. It was at Delhi that the Mogul Emperors first established their sovereignty, and in the splendid and beautiful Diwân-i-Khâs, the Private Hall of Audience of the Emperors, once stood that throne—the Takht-i-Taüs—which cost six millions sterling, being composed of two peacocks of gold with spread tails, all fashioned to the life with sapphires, emeralds, rubies and diamonds, between them hovering a parrot of the natural size carved out of a solid emerald, and overhead a canopy of beaten gold, supported by twelve golden columns. Here sat in state the Great Moguls. In the magnificent fortress-

palace of the Emperors, in a spacious square, stands the majestic Diwân-i-'Am, with its thirty-two red columns, and the royal seat of white marble; and not far off is the Moti Musjid, or "Pearl Mosque," a white wonder of architecture, and the sumptuous Akab Baths, "where rivulets of crystal water were made to wander through channels of polished alabaster, over slabs of inlaid stone, and the lips of silver and gold basins." Nothing in Imperial Rome ever exceeded the magnificence of these royal retreats of Shah Jehan and Aurungzebe, or the delicate beauty of their Zenana looking through pierced marble lattices upon the Jumna. Over one gold and satin archway of this building the architect has written, in a proud Persian verse—

> If on earth there be a bower of bliss,
> That place is this, is this, is this!"

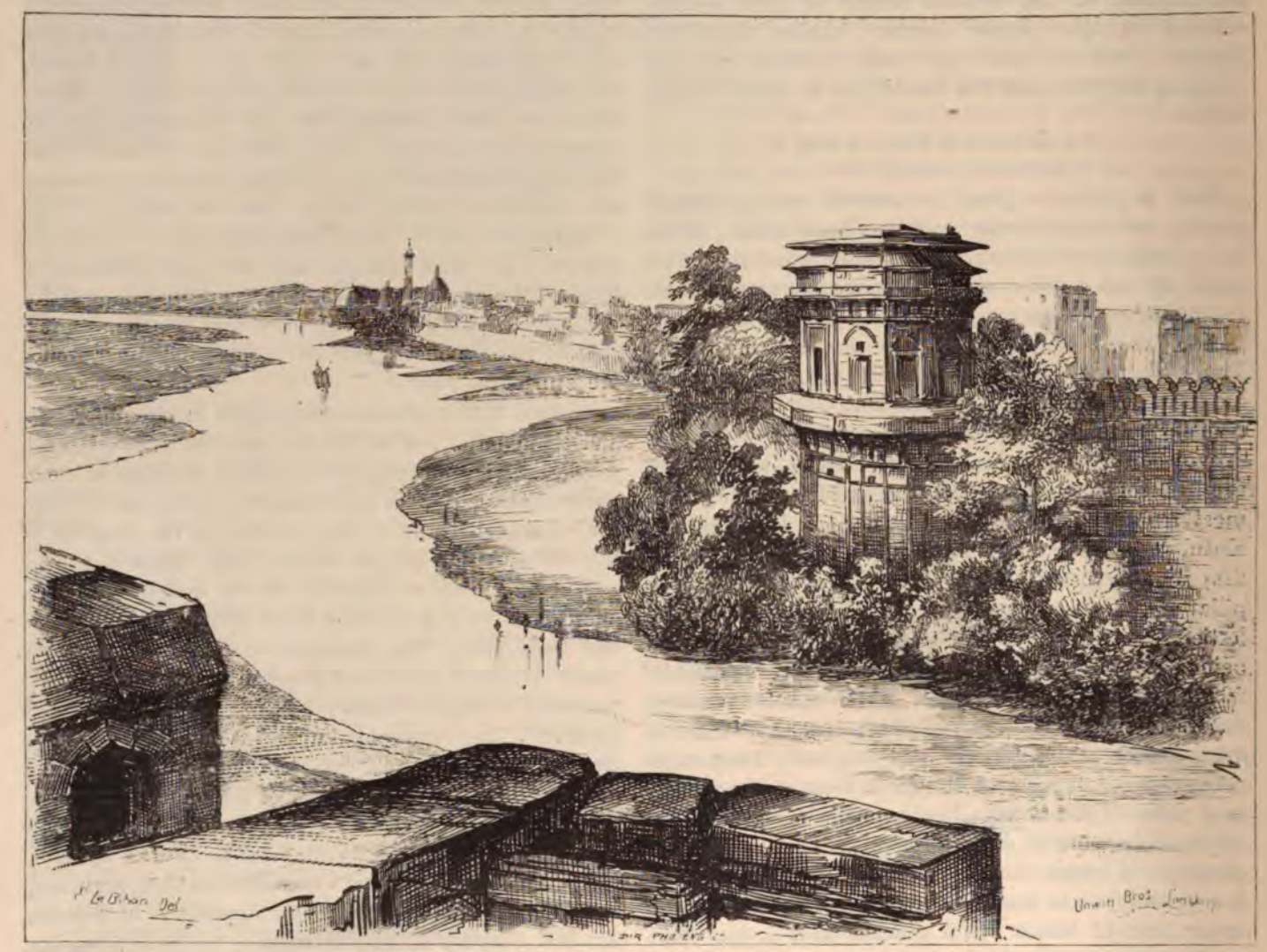
Such is Delhi! a place of oriental pomp, infinite luxury, and indescribable religious fanaticism. There is no difficulty, therefore, in supposing what the influences of such a place on native character would be, or the effects of it on the safety of the European society unless defended by an overpowering force. The Mohammedan soldier believes that he who dies by the sword in defence of his faith will be instantly translated to Paradise. The present capital of the province of Delhi was built by Shah Jehan, who erected the Hall of Justice. Among the ancient buildings, the most remarkable object in the city of Delhi is the Kutub Minar, one of the finest monuments of the world, lifts its lofty beauty to the sky. This extraordinary pillar is unique of its kind; in height it exceeds the loftiest columns in Europe, that of Antoninus at Rome being only 122½ feet, and the Monument of London 202 feet from the pavement, while this lofty pillar towers to the great height of 242½ feet, and there is every reason to believe it was originally built with seven stones. The Kutub Minar, or Written Monument, is a pillar of fluted masonry, embellished at each of its tapering storeys with inscriptions in the Tughra character of Arabic, which is so ornamental. The three lowest storeys are made of a warm red sandstone, the upper ones of white Ulwur marble, and it was built to commemorate the Mohammedan conquest of Delhi in 1194. The Kutub Minar having, by the dilapidation of time, earthquakes and lightning, fallen into a dangerous and ruinous state, the Government of India in 1826 authorized its being properly repaired, which was effected by Major R. Smith of the Engineers, at an outlay of £2,226.

There are many other interesting portions of old Delhi to be described did space permit, but I cannot leave unnoticed the majestic Jumma Musjid, the largest mosque in all the nations of Islam, the boast of Shah Jehan and of Aurungzebe. This great mosque is considered the most complete specimen of the Mogul type of achitecture, which was carried to such unrivalled perfection by Shah Jehan. The view from the summit of one of its minarets embraces an amphitheatre of historic relics of unsurpassed extent. On a clear day may be discerned, the Kootub Minar, Poorana Killa, Humaioon's tomb, Sufdir Jung's mausoleum, with other hundred domes and cupolas dotting the plains, and as the eye falls on the now famous heights, passing from the Junter Munter and the great square of the Edjah, there become visible Hindo Rao's House, the observatory, the mosque picquet, and the flag-staff of glorious and tragic memorial, the whole interior of the Palace, the Meerut side of the Jumna, and the ruins of Ferozabad are also embraced in the panorama, in the distance of which there is a wilderness of monuments belonging to different ages. In this magnificent mosque are deposited, besides many precious copies of the "Perspicuous Book," the Kafsh-i-Mubârak, or Prophet's slipper, filled with jasmine, and the Mui-i-Mubârak, a hair of Mohammed's moustache, certain chapters of the Koran written by Ali Hoosein and Hosein; impression of the Prophet's foot on stone, and other relics are still to be seen.

Modern Delhi is some seven miles in circumference, and though the soil is sandy, and the country level, artificial irrigation renders it quite a paradise of luxuriant vegetation. The cantonments are two miles from the Cashmere Gate (a spot sacred to the memory of Salkeld and the gallant soldiers who effected, at the cost of their lives, an entrance for our besieging troops), approached by a good road lined with handsome villas and bungalows. The garrison consists of one battery Royal Artillery, a Wing of English Line regiment, detachment of Native Cavalry, and one regiment of Native Infantry. The encamping ground is outside the Lahore Gate, a mile and a half from the church, and two miles from the Delhi Gate. In front of the church is a massive marble cross, sacred to the memory of those who were cruelly massacred in May 1857. In the Dewan-i-Khas, or Hall of Audience, a museum has been organized, and contains cabinets and cases illustrative of Science, Art and Commerce, alike interesting to the antiquarian, the archæologist, and the student of natural history. Here specimens and works of labour and art indicate the material and industrial peculiarities of the different districts of India. There may be seen the mosaics and soapstone of Agra, the alabaster of Afghanistan, the marbles of Jeypore, and coal from the different sources whence it is now obtainable, together with specimens of the art manufactures of India generally, and products of all kinds, such as many of us had an opportunity of seeing, though on a much larger and more complete scale, in the Art-Ware Courts and Economic Court in the Indian section at the Colonial

and Indian Exhibition, an exhibition primarily due to the initiative of H.R.H. the Prince of Wales. Visitors to Delhi should not fail to make themselves acquainted with one of the oldest, most quaint, and richest bazaars of Delhi, called the "Dureeba." It presents a very remarkable variety of objects, and in the evening, when the shops are dimly lighted by "chirags" (or oil-burners), the scene is very picturesque. In the many compartments on either side of the street we see numerous trades carried on, the artizans all busily engaged in their avocations, bargaining with their customers, or resting from their labours, to remark the look of curiosity evinced by the traveller to whom the Dureeba is an unfamiliar spectacle. In the Chandni Chouk the tourist cannot fail to be gratified by the endless variety of the objects before him. "In few streets of the world is there such a strange and busy stream of life. Men of all countries variously, curiously, beautifully, and ridiculously apparelled, may be seen in continuous flow along the raised *trottoir*." The shops in the Chandni Chouk are of endless variety. The lapidary will be seen side by side with the lace-worker. The toy-shop close to the booth of a fruit-seller; the vendor of firewood next to a tobacconist; the tin-smith close by the maker of native slippers. At many of these little marts, European soldiers may be observed busying themselves with small purchases.

In the heat of the day the tinkling of the water-carriers will be heard. This is peculiar to Delhi. The manner in which the little Bheestee strikes his brass cups together is worthy of note. He obtains his pittance from every one whose thirst he is invited to allay.



WALLS OF DELHI, FROM SELIMGHUR, ON THE RIVER JUMNA.

The cause of the mutiny at Delhi was owing to a combination of circumstances. As the new year advanced there was unwonted excitement among the Mohammedans of Delhi. The native newspapers teemed with vague hints of a something coming that was to produce great changes, resulting in the subversion of the power of the English, and mendacious statements of reverses sustained by the English in Persia and elsewhere were freely circulated,

"Most people," it was declared in a native newspaper, rejoicing in the name of the *Authentic News*, "say that the King of France and the Emperor of Turkey will both side with the Persians. And it was added that the Russians were the real cause of the war; for, using the Persians as a cloak, they intend to consummate their own designs by the conquest of Hindostan." Alike in the bazaars and in the lines, in the shops of the money changers and in the vestibules of the Palace, these stories excited vague sensations of wonder and of awe, and pointed to the prophecy that "when the English had ruled in India for a hundred years, they would be driven out, and a native dynasty restored." As Kaye says: "It in reality very little mattered whether the King of Delhi and the Shah of Persia were or were not in communication with each other, so long as the Mahomedans of Upper India believed that they were. It is the state of feeling engendered by such a belief, not the fact itself, that is really significant and important." Many other circumstances, besides those narrated, contributed to keep up a state of disquietude at Delhi, and this was intensified when news came in from Meerut bringing intelligence that eighty-two soldiers had been imprisoned, and that a serious disturbance was to take place in consequence. Owing to this the guards at the gate of the Palace made no secret of their intentions, but spoke openly of what they expected to occur, which was that some of the troops after mutinying at Meerut would come over to Delhi.

The troopers of the mutinous 3rd Cavalry were allowed to leave Meerut and ride to Delhi without an attempt of any kind being made by the Meerut brigade to pursue them! By eight o'clock on the morning of May 11th, the foremost troopers had crossed the Jumna by the bridge of boats, and under the windows of the King's Palace they were now clamouring for admittance. Hearing their cry, the King summoned to his presence Captain Douglas, the Commandant of the Palace Guards. This officer then informed the aged and tottering monarch that he would descend and speak to the troopers; but the King and his physician Ahsanoolah, each laying hold of one of his hands, imperatively forbade him to go down to the gate. Then Douglas went out on a balcony and told the troopers to depart; he might as well have spoken to the winds. Baffled at one point they made good their entrance at another. It was in vain to tell them to close the gates, there were so many, and the guards were not to be trusted. The 38th Sepoy Regiment, then on duty in the city, were prepared to cast in their lot with the mutineers. The Calcutta Gate—the only gate of any importance on the river side of the city—was already in the hands of the troopers. At this point Fraser and Metcalf attempted to reason with the troopers, but in vain. One of the troopers fired his pistol at Mr. Fraser, but missed him; another wounded Mr. Hutchinson in the arm. Mr. Nixon, the Commissioner's confidential clerk, who had also arrived here, was killed, and the struggle had begun in earnest. The advanced body had now carried their point—they had seized the Calcutta Gate, and the city was at their mercy. The main body soon arrived, and made for the jail, where, without any show of resistance from the guards, they forced the gates and let loose the whole body of convicts. While these scenes were passing at the Calcutta Gate, other troopers had been at work in the Palace, rallying with their war cry, "Deen! Deen!" the fanatics with which it swarmed, and who were evidently expecting them, so that by the time Mr. Fraser and Mr. Hutchinson, with Captain Douglas, had reached the main gateway, they found the whole palace in commotion; the Sepoy sentries and the King's own guard were in open mutiny. There ensued a scene of confusion that almost baffles description. The mutineers cut down every European they could find, and set fire to the houses. The citizens closed their shops in amazement and terror, and from one end of Delhi to the other, as the news ran along the streets, there was sore bewilderment and perplexity, and everybody looked for the coming of the pursuing Englishmen from Meerut, and feared that they would inflict a terrible retribution upon the city that had harboured the guilty fugitives. But no English regiments were coming to the rescue. These maddened troopers, confident that among all the Sepoy regiments in cantonments there was not a man who would pull a trigger in defence of his English officer, were now masters of the city. Without a fear, therefore, they rushed on, "scenting the English blood, eager for the larger game, and ever proclaiming as they went glory to the Padisha and death to the Feringhees." The murders in the Palace then followed, first that of Simon Fraser, the Commissioner, by the Palace Guard. The Rubicon was now crossed. The Mohammedan retainers in the Palace then rushed up the stairs to see the other objects of their hate. They found Captain Douglas, the Rev. M. J. Jennings, the English chaplain, his daughter, and a friend (Miss Clifford) in one room, and Mr. Hutchinson in an adjoining one, and murdered them all. Four months after, when the blood-stained city was once more in our hands, were still to be traced the stains of blood which told their tale of horror.

Other troopers rode on to that part of the city called Dariao-Gunge, which had originally formed the artillery lines, but was at this time occupied by conductors and others attached to the Magazine, clerks in Government offices, and pensioners, with their families, forming in all a considerable Christian community. This most quiet part of the city was soon to become a *charnel-house*. In rode the troopers, and soon were their sabres running red with the blood of

old men, women and children. The budmashes of the city, the scum of the bazaar, followed on their heels; an indiscriminate and cold-blooded slaughter ensued; the few who for a time were able to escape, rushed down to the sands on the river side, others concealed themselves in the larger houses, but were eventually mastered or betrayed to swell the list of victims.

Another party of troopers made for that portion of the city between the Magazine and the Cashmere Gate, where lay the chief public buildings and private houses. Here was Government College; Mr. Roberts and Mr. Stewart the assistant teachers were cut down in the midst of their work, and Mr. Heatley, editor of the *Delhi Gazette*, his mother, wife and family, were all murdered here. At the Delhi Bank fell Mr. Beresford, the manager, with all his family, after a gallant and desperate resistance. The young assistant at the telegraph office was cut down with his hand on the signalling apparatus. The succour that was sent from cantonments proved to increase rather than suppress the tumult already raised in the city. The 54th N.I., under the command of Col. Ripley, on reaching the inner wooden gate of the main guard and entering the open square beyond, was met by a party of troopers who dashed down at once upon them. So little prepared for such an emergency were the colonel and the other officers, that they appear to have been marching together at the head of the regiment. The colonel ordered his men to load, but they paid no heed. They at once joined and fraternised with the mutineers, who fired off their pistols with fatal effect on the officers of the 54th N.I. Col. Ripley was left for dead; he was wounded in seventeen places (some from the bayonets of his own men), but contrived, as the troops now in open mutiny dispersed for promiscuous carnage and plunder, to drag himself to the wooden gate inside the main guard, where he was found by Dr. Stewart, who placed him in Mr. Le Bas's carriage and took him at once up to cantonments.

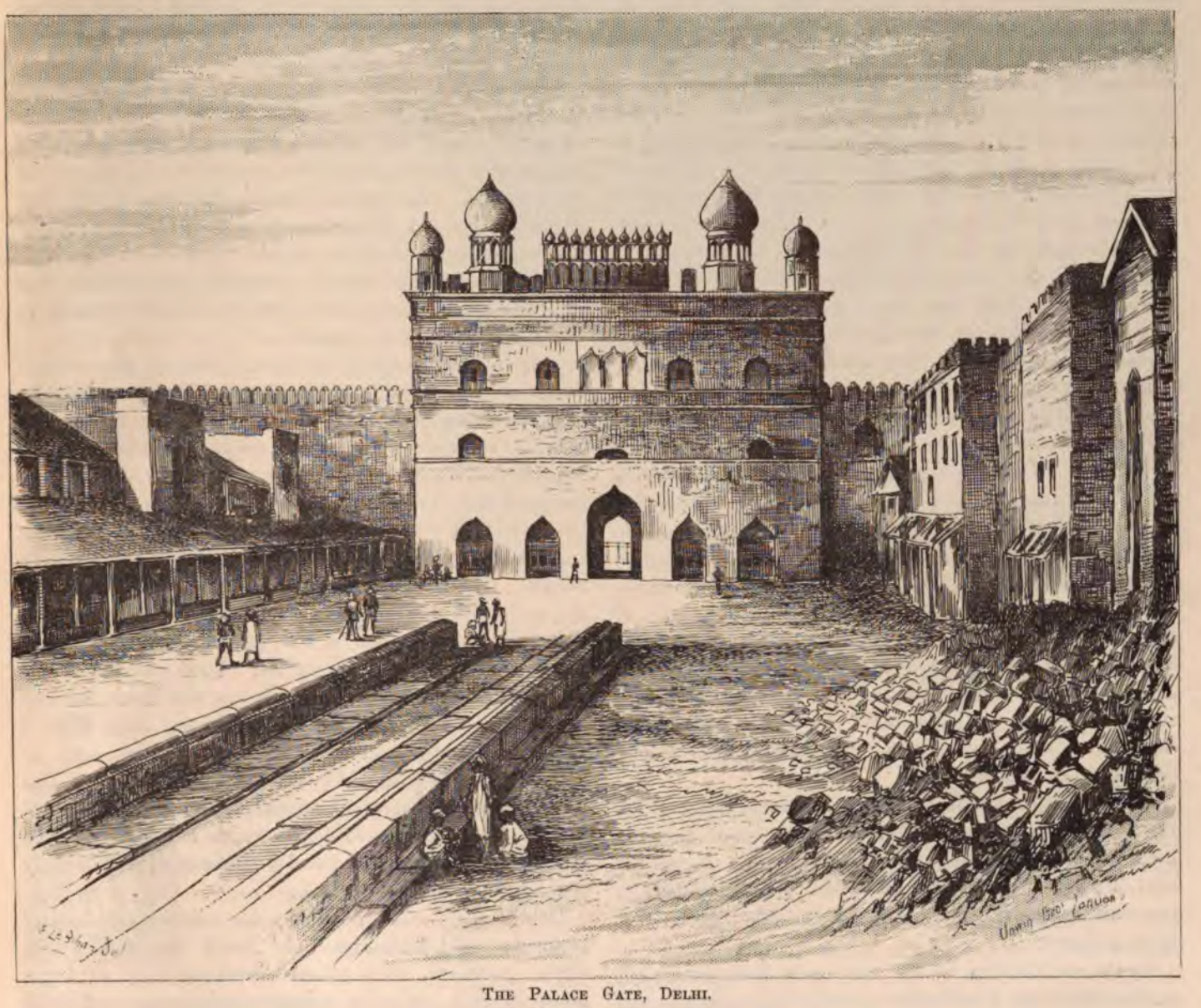
Brigadier Graves made such arrangements as were possible for the safety of the station and to guard against surprise, the ammunition of the remaining guns was packed up ready for use, and the horses ordered to be kept harnessed. The guard of the Magazine was strengthened from its usual complement of twenty men under a native officer to a subaltern's guard of a hundred men. It was decided that all the ladies and families of the station, with the many fugitives who were already flocking in from the civil lines and the city, should collect together at the Flag-Staff Tower, as being the only post capable of defence. Here it might be possible to hold out for a few hours, provided no guns were brought against them, and there was every reason to hope that, with so strong a European force near at hand at Meerut, only a few hours could elapse before they would be extricated. Here they took up their position, a black hole in miniature without the final catastrophe. One who was present says: "I shall never forget that scene, officers, ladies, children, ayahs, and other servants were crowded in about the tower. Carriages and horses were standing close by; the heat was very great. Most of the children were crying; and no wonder, for they were hungry, thirsty, uncomfortable and frightened. Many of the ladies were in a state of great despondency; some, however, were as cool and collected as possible, never shedding a tear or uttering a complaint."

The two remaining guns of De Tessier's Battery had been placed in front of the Flag-Staff Tower, so as to sweep the road. On the Ridge, along the right flank, about a couple of hundred of the 38th N.I. and some of the 74th N.I. were placed, and the Christian band-boys of the native corps were collected together, close around the tower, with spare arms and ammunition, and a further supply was stored inside the building ready for use. It was noticed that the rifle company of the 38th were constantly mixing themselves up among the gunners to prevent the guns being worked. As a watch upon these worthies, two or three of the gentlemen inside placed themselves on the top of the tower, and stood, musket in hand, ready to shoot down the first man who interfered with the gunners or made any attack upon the officers.

At the main guard no authentic intelligence of what was passing in the city reached our expectant officers, except that which was conveyed to them by European fugitives who sought safety there from other parts of the city. Scared and bewildered they had come in, each with some story of an escape from death, providential, almost miraculous. But there was little room for rejoicing, for at the main guard they were surrounded by Sepoys, who at any moment might break out into open revolt, and shoot down the Europeans of both sexes congregated in the enclosure. At intervals there was a sound of artillery, the meaning of which was not correctly known, and then a tremendous explosion, which shook the main guard to its very foundation. It was the explosion of the great Delhi Magazine, a story which will never be forgotten.

The Delhi Magazine with all its vast supplies of munition of war was in the city at no great distance from the Palace. It was in charge of Lieut. George Willoughby of the Bengal Artillery, with whom were associated Lieutenants G. Forrest and W. Raynor, Assistant Commissioners of Ordnance; Conductors Buckley, Shaw and Scully; Sub-Conductor Crow, and Sergeants Edwards and Stewart. Willoughby was at the Magazine superintending the accustomed duties of his department, and little dreaming what the day would bring forth, when Forrest came in, accompanied by the magistrate, Sir Theophilus Metcalf, and informed him that the Meerut

mutineers were streaming across the river. Willoughby at once braced himself up for the defence of the Magazine. He knew how much depended upon its safety. The gallant little band now under him prepared itself to defend the Magazine by every means which, on the spur of the moment, it was possible to devise, in the firm hope "that the white regiments at Meerut would soon come to his aid." It was soon plain that the native establishment of the Magazine was not to be trusted. The men were communicating with the multitude outside. So it became necessary to prepare for the worst. The nine resolute Englishmen calmly prepared themselves to face the tremendous odds which threatened them, and, if the sacrifice were required, to die beneath the ruins of the magazine. Cheered by the thought of the approaching succour from Meerut, these brave men began their work. The outer gates were closed and barricaded. These preparations are thus described by Lieut. Forrest himself:—"Inside the gate leading to the park we placed two 6-pounders double charged with grape, one under Acting Sub-Conductor Crow and Sergeant Stewart, with the lighted matches in their hands, and with orders that, if any attempt was made to force the gate both guns were to be fired at once, and they were to fall back on that part of the Magazine in which Lieut. Willoughby and I were posted. The principal gate of the Magazine was similarly defended by two guns, with the *chevaux de frise* laid down on the inside. For the further defence of this gate and the Magazine in its vicinity there were two 6-pounders so placed as to command both the gate and a small bastion in its vicinity. Within sixty yards of the gate, and in front of the office, and commanding two cross-roads, were three 6-pounders and one 24-pounder howitzer, which could



THE PALACE GATE, DELHI.

be so managed as to act upon any part of the Magazine in that neighbourhood. After all these guns and howitzers had been placed in the several positions above named, they were loaded with double charges of grape."*

Next followed the preparations for the *dernier ressort*. From the main powder-store was laid a train to the foot of a large lime tree standing alone in the yard. At the trunk of this tree was stationed Conductor Scully, with orders that when he saw Conductor Buckley raise his hat the train was to be fired. A strong guard was sent down, under a son and grandson of the King, to demand the immediate surrender of the Magazine in the King's name. It was treated with contemptuous silence. All threats being unavailable, scaling ladders were at last sent. Then up swarmed the rebels, who, on reaching the tops of the wall, were greeted with volleys of grape and swept off; but more crowded up. Nobly were the guns worked by the few Englishmen, but it was all in vain. As a last hope Willoughby rushed to the small bastion on the river-face, took one more look—a long anxious look—towards Meerut, but not a sign of coming succour. It was clear that Meerut had failed them. Willoughby returned to his guns. For about five hours had that little band defended their fortress. Buckley had been wounded in the arm; Forrest had two shots in the hand. Further defence was hopeless. Willoughby passed the fatal word to Buckley, Buckley raised his hat, Scully fired the train, the whole building seemed to be hurled into the air, and hundreds of the rebels were buried in the ruins! Not one of that gallant band expected to escape with his life, but four of the Nine, in the confusion which ensued, though at first stunned and bewildered, shattered and bruised, made good their retreat from the ruins. Raynor and Buckley eventually reached Meerut. Scully and his gallant comrades were never seen alive again. Willoughby and Fraser escaped to the main guard.

"The effect," says Kaye, "of the heroic deed, which has given to those devoted Nine a cherished place in history, can never be exactly computed. . . . It was the first of many intrepid acts which has made us proud of our countrymen in India; but its brilliancy has never been eclipsed."

At the main guard in the city, as in the cantonment on the Ridge, the disaffection of the Delhi regiments had ripened into general mutiny. At the main guard the massacre of our people was commenced by a volley from the 38th, by which several officers were shot dead. Amidst the shower of musketry some managed to escape through an embrasure in the bastion skirting the court-yard of the main guard, through which egress might be obtained, and by dropping down into the ditch—a fall of some thirty feet—and ascending the opposite scarp, the slope of the glacis might be gained, beyond which there was some jungle which might afford cover to the fugitives at nightfall. The gallant officers saved the lives of the despairing Englishwomen by fastening their belts together, and thus aided, whilst some dropped into the ditch to receive the women, others helped them from above to descend. And then, when the party had surmounted the outer slope of the ditch, and were safe upon the crest of the glacis, they made their way into the jungle which skirted it, and pushed on, some in the direction of the cantonments and some in the direction of Metcalf House.

In the British cantonment on the Ridge the energies of the little band had begun to flag under the influence of the increased heat and the protracted suspense. The sepoys had turned upon them and now held possession of the guns. Captain de Tessier, who was at the Flag Tower, called out to his men to return, and was met by a volley of from fifteen to sixteen shots from the 38th Sepoys, and, although he escaped, his charger was mortally wounded, and had barely strength enough to carry him back to the Tower.

"At last," says Mr. Le Bas, "one of the officers suggested that we should get away while we could. At first the Brigadier would not hear of such a thing . . . but the question was agitated, and retreat gradually became familiar to men's minds. Moreover, the Sepoys implored their officers to escape before the rabble from the city burst upon the cantonment. So forth from the cantonment, and forth from the city went our fugitive people. Some made their way to Meerut, some to Kurnaul, and some to Umballa. Others perished miserably on the road, and a few, unable to proceed, were left behind by their companions. This was the sorest trial of all that befell the fugitives, but there was no help for it. So there was not, after the 16th May, a single European left in Delhi. The British had no longer any footing in the capital of the Mogul." "The Fatal Falter at Meerut,"* and the grievous inaction of the officers in command there, which led to a number of Christian people being foully massacred, will be duly considered in my next article.

Delhi, since the Mutiny, has undergone many changes. Old buildings have been knocked down, streets widened, trees planted, and sanitary arrangements carried out on a comprehensive scale. "Delhi Boils, which affected whole regiments at a time,† both European and native, are things of the past, due to General Lord Mark Ker, K.C.B., who was appointed Brigadier at Delhi in 1862. The following account his Lordship has done me the honour to write:—'On my arrival, in 1862, I found the population generally, and the garrison, British and native, suffering from the

* *The Handbook for Delhi.* By F. Cooper, Punjaub Civil Service.

* See *Scattered Chapters on the Indian Mutiny*, by Dr. O'Callaghan, Surgeon, Bengal Army.

† *Vide* the writer's essay, *Indian Boils: their Varieties and Treatment.*

Dehli sore. Hardly an officer or soldier of the garrison who had not suffered or was suffering from it; one in ten certainly unfit for duty—the native soldiers to a greater extent, as these had been longer on the ground, many of them maimed for life. I was sure before I left England, from reading some work of Dr. Brewer's, which spoke of like disorders in other Eastern cities, such as Baghdad, Aleppo, &c., that certain trees had or *would* have a powerful effect in absorbing the malarious night exhalations which caused such sores. Therefore I set to work at once and planted avenues and groups of trees and laid down grass. I drained the military cantonments, repaired the ancient aqueducts of the Moguls, the choking up of which *caused* the malarious exhalations. I found one fruitful source of disease (in addition to the sore) in the accumulated and immense and smaller piles of the dilapidations caused by the extensive ruins of a great part of the city, blown up and destroyed by us after the Mutiny, as encroaching too closely into the military cantonments, between the Jumma Musjid and the Palace, and extending for a mile and a half in the direction between the Delhi and Cashmere Gates. These ruinous heaps were the receptacles of all kinds of filth. The great expense of their removal had deterred the Government from consenting to it. Most providentially at this time the great railroad engineers were constructing embankments the other side of the Jumna. I persuaded the directors to cart away the whole of the heaps of stone and mortar, for the purposes of their embankment, and thus the whole space was cleared in a short time. I at once planted and grassed the open spaces, and I made the "Elgin" road between the gates I have named, and avenued it nearly the whole distance. Meantime, I had despatched all the sufferers from the sore for change of air to shorter or longer distances. Many of the slighter cases that I sent, even to the short distance of the old native lines, where were trees and grass, returned fit for duty in a fortnight's time. After eight years I went out to India so as to see for myself the result. On arrival at Dehli I went to the first military hospital inside the walls that I came across. I asked the apothecary in charge at the time how many cases of the Dehli sore he had? *He had never heard of the Dehli sore.* The leaves of my trees and drainage had taken it and given it out by day to the sun and the skies! On my departure in 1864 the Commissioner of Dehli, Colonel Hamilton, and the Municipal Council, presented me, for the first time in Indian history (excepting, I believe, an address in Punjabee to Sir Sydney Cotton after the Mutinies), with an address of cordial thanks and regret at my departure. I have alluded to no military matters in these few words about Dehli. I am content to record one thing alone as good as a campaign. For it was a fight in which I was unsupported, even by the medical profession for a long time—a fight against a malignant enemy, and which ended in victory! The same tactics would equally conquer an epidemic.'"

J. C. D.

PALMER'S QUICK-FIRING GUN.

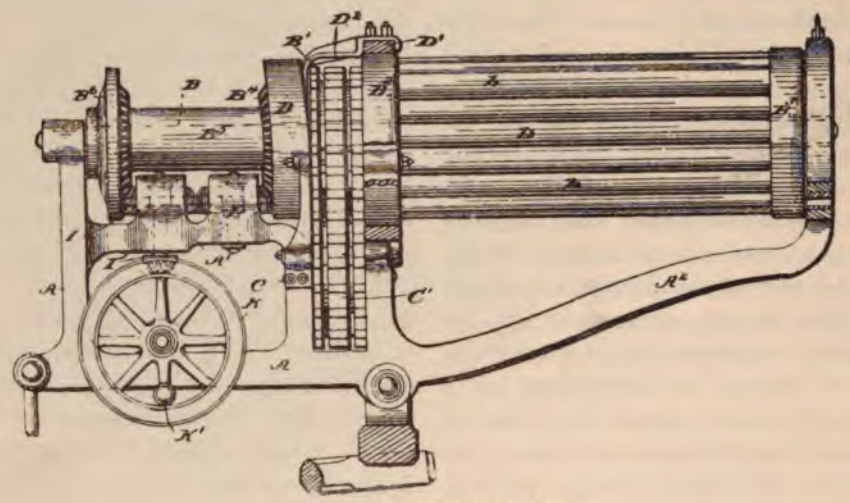
MR. PALMER'S gun consists, in general, of a number of barrels mounted on a wheel or revolving frame, coinciding in size and form, and also in rapidity of revolution, with one of the wheels which carry the cartridges and support the force of the discharge. The cartridges, of copper or brass, are strung together by a flexible connection, to facilitate their feeding, to the firing-place by mechanical means, and are held at the moment of firing between two stout wheels, each of which is recessed to a depth sufficient to receive half the cartridge. These wheels firmly support the cartridge laterally, while the breech is covered by a strongly-backed disc in which the firing-hammers are mounted. The cartridges are fired in succession, as rapidly as may be desired, each through a different barrel, until the set of barrels has made a complete revolution, when the round of discharge through the same barrels is repeated; and so on until all the cartridges belonging to the string in use have been discharged.

A is the framework, with arms A^1 and A^2. It may be mounted on a carriage of any suitable construction, only a small portion of which is shown in the accompanying drawing. In the framework A is mounted a stout shaft B, on which is fixed a wheel B^1, and two larger wheels B^2, B^3, between which latter are mounted rifled barrels *b*. Immediately in rear of the wh
is a spherical bearing B^4, behind which is a sl
on the rear end of which is a wheel B^6. The v
and B^2, the spherical bearing B^4 and the sleev
forged or cast in a single piece. The exter
wheel B^1 has semi-cylindrical cavities, exten
tudinally in line with the barrels *b*.

C is a short shaft, mounted in the fixed fr

On this is a wheel C^1, having semi-cylindrical cavities matching those in the wheel B^1.

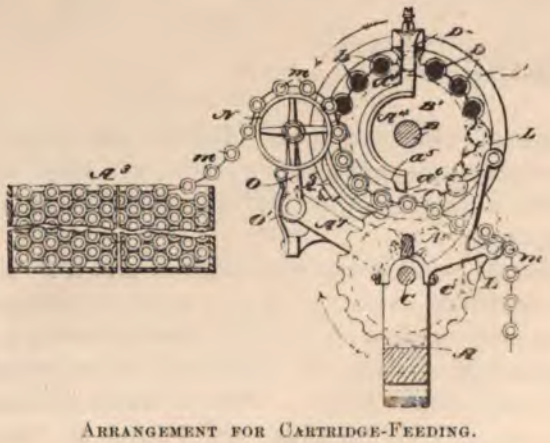
The cartridges are of a length a little greater than the thickness of the wheels B^1, C^2. They are inserted in pockets of knitted or woven fabric, and form a long flexible series equally spaced. They are stored in a reservoir A^3, mounted conveniently alongside, and are successively brought into position and discharged



Palmer's Quick-firing Gun.

through the several barrels as each passes the lowest point in its circuit. Each cartridge is, at the moment of firing, closely confined, and struck by a firing-pin at the proper moment in the following manner :—

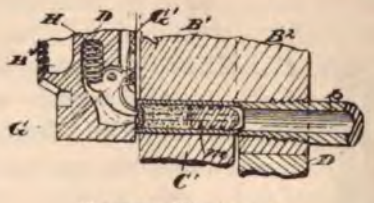
D is a large ring mounted on the spherical bearing B^4, with freedom to oscillate slightly thereon. Its upper edge stands at a little distance in rear of the



Arrangement for Cartridge-Feeding.

adjacent face of the wheel B^1, while its lower edge presses firmly against the latter and forms a firm abutment for pressing against the rear end of the cartridge when the latter is fired. The ring D is chambered to contain hammers G—one for each barrel—with liberty for them to move. Each hammer is actuated by a spring H to effect the blow. It is drawn back by the engagement of a short arm G^1, with a fixed track A^4, on the rigid ring D, which loosely encircles the wheel B^3, and is constructed to withdraw the hammer, compress the spring, and then liberate it suddenly as the hammer reaches the firing point. Each hammer acts on the cartridge by a relatively small surface, which is protruded through a correspondingly small hole. The adjacent surface of the ring D, and the small point of the hammer protruding through it, form a firm abutment at the rear of the cartridge at the moment of firing.

The ring D turns at the same rate as the ring B^2, and its series of barrels. Each cartridge, as it approaches the point where it is gripped firmly between the wheels B^1, C^1, is thrust endwise into the rear of the barrel *b*, by the abutment ring D. The front end of the cartridge is thin, and, being of copper or other



Hammer Mechanism.

soft material, is easily contracted by being pressed into the barrel.

Between the wheel B^6 and the ring D, are two wheels I and J. The lower part of each of the latter consists of a roller adapted to receive and transmit a considerable force without yielding. These rollers exactly fill the space, and by pressing against each other, against the wheel B^6, and against the ring D, enable the latter to resist the force of the explosion. Rotary motion is communicated with the wheel I, by means of the bevelled wheel I^1, which is engaged by a bevelled gear-

wheel K, turned by the operator through the aid of a crank-handle K^1. The operator, by turning this handle, rotates the series of barrels, and also the ring D, revolving the latter in the same time as the former.

Two deep grooves are turned in the peripheries of the wheels B^1, C^1. In these are mounted a pair of ploughs L, which are fixed on a branched bracket A^5. These ploughs disengage the string of cartridges if they should stick in their respective semicircular cavities in either B^1 or C^1 after the firing.

A^6 is a curved piece lying concentrically to the wheel B^1, to hold the cartridges in their semicircular cavities on their passage downward to the point of firing. This arrangement becomes of importance when the end of a string of cartridges is being carried down.

N is a light smooth wheel mounted in a fixed position but able to yield a little by the turning of its supporting link O, on the pivot by which it is suspended on the bracket A^7. The link is subject to the force of a spring O^1, arranged as shown in the accompanying illustration. It urges the wheel N, and the string of cartridges, which are led over it, into their proper position with relation to the wheel B^1.

INVENTIONS APPLICABLE TO THE REQUIREMENTS OF HER MAJESTY'S NAVAL AND MILITARY FORCES.

Major J. T. Bucknill's and Mr. W. O. Smith's Improved Firing Apparatus for Torpedoes or Mechanical Mines for Land Service.

The improved firing apparatus for torpedoes or mechanical mines for land service consists in the first place of a metal tube which can be fixed in a vertical position into the top of the case in which the explosive is contained.

Within this tube is a piston with a rod or stem projecting upwards, and passing out of the tube by a hole provided for it in an end-piece which closes the upper extremity. The lower end of the tube is also closed by an end-piece, which is perforated, and on its inner side carries a nipple receiving a percussion cap. When this cap is fired by a blow struck by the piston upon it, the torpedo or mine explodes. When the explosive employed requires the use of a detonator, this is applied beneath the cap.

Around the rod or stem of the piston is a coiled spring, which abuts at its lower end on the piston, and at its upper end on a metal fork.

The latter has two prongs, which enter two notches or slots cut for them through the tube, one on either side.

The fork embraces the tube between its prongs, and is slidden in its place in a direction at right angles to the length of the tube. The prongs project partly through the notches in the tube, and form the abutment for the spring. The latter is held compressed between the piston and this abutment, by a copper wire inserted into a hole bored through the piston rod or stem, and through the upper end-piece of the tube.

For further security, the piston rod or stem is retained, until the torpedo or mine is laid, by another fork embracing the rod immediately over the upper end-piece, the prongs of this fork entering notches filed to receive them on either side of the piston rod or stem.

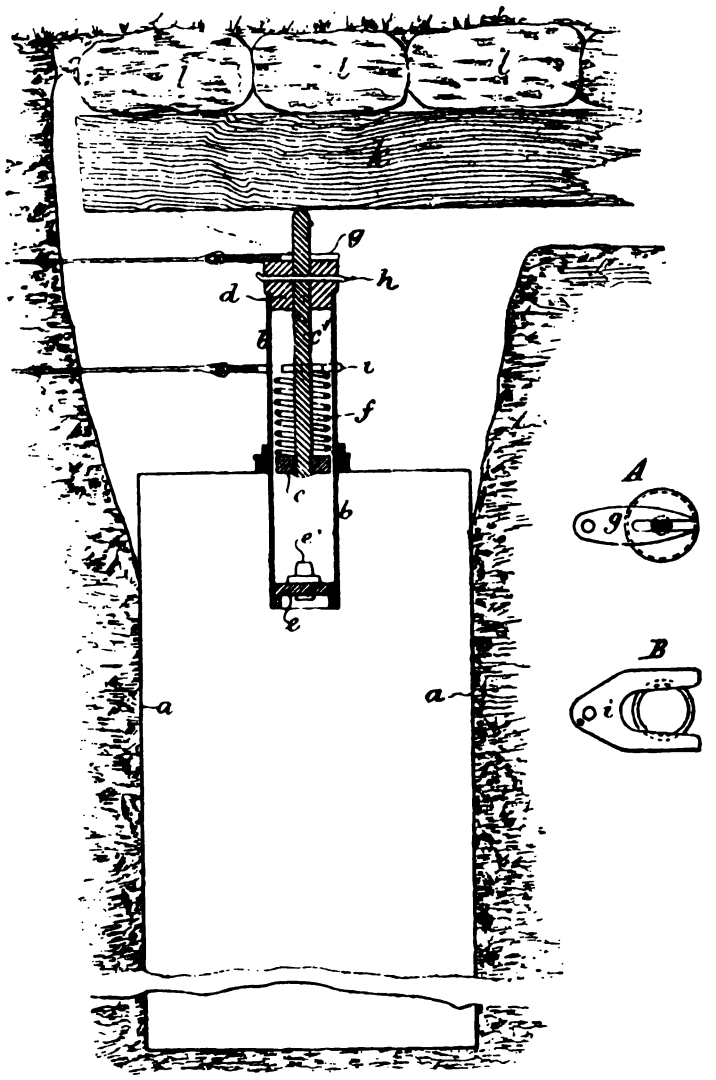
When the torpedo or mine is laid, a deck of wood triangular in shape, and about 18 inches long, covers the mine. One corner presses on the top of the piston rod or stem, and the other two corners are supported upon a step cut in the slightly excavated ground. A plank of wood about three feet long may also be used instead of the triangular deck, one end of the plank resting on a step cut in the ground, and the other end on the top of the piston rod of the torpedo. The deck or plank is then covered with grass, soil, etc., to resemble the surrounding ground.

A wire is attached to the fork, which embraces the piston rod or stem, and by pulling this wire from a distance, the torpedo or mine is rendered active. The fork coming to the hand of the operator shows him that the torpedo or mine is in the active condition. A sufficient weight now falling on the hidden deck or plank will cause the mine to explode. The sensitiveness of the mine to such action can be adjusted as desired by using a copper wire of any desired strength to resist the shearing force applied. No. 19 B.W.G. soft copper wire is found to give satisfactory results.

In order to render the mine safe for recovery, a second pull line is provided, and is connected to the fork which forms the abutment for the spring of the apparatus, and this line can also be attached to the deck or plank over the apparatus. On pulling this line, both the deck

or plank and the abutment fork are withdrawn, and the latter coming to hand shows that the torpedo or mine may be approached with safety.

The safety of the apparatus is so fully ensured by the withdrawal of the abutment fork, that it may be consi-



VERTICAL SECTION OF MINE.

dered unnecessary to withdraw the deck or plank also, which in frosty weather it might be very difficult to do.

A tin cylinder is generally used for the charge case.

A group of mines is conveniently laid in the following manner :—

Two pickets are driven into the ground to mark an alignment. On the alignment a series of labels or indicators, one for each mine of the group, is placed. The mines are laid directly in front of the labels or indicators, and on each of the latter the distance from its mine is written. The recovery wire of each mine passes back to its label or indicator. The wires to render the mines active pass back a short distance only.

To render the mines active, a pull line is employed, attached in turn to each of the last-mentioned wires, and by means of it the safety forks are successively withdrawn.

To recover the mines, the other wires are pulled by means of a pull line from behind the alignment, until the abutment forks are brought to hand.

The accompanying illustration represents a vertical section of a torpedo or mechanical mine provided with firing apparatus arranged in accordance with this invention.

a is the case containing the explosive, buried in a hole in the ground ; *b* is a tube fixed into the top of the case ; *c* is a piston within the tube, having a rod c^1 which projects from the top of the tube through a hole in an end piece *d*, which it fits ; *e* is a lower end piece fixed into the tube *b*, fitted with a nipple e^1 which receives a percussion cap ; *f* is a coiled spring, which, when uncompressed, will extend from the piston up to the end-piece *d*. The drawing, however, shows the spring in the compressed state. As the parts are now arranged, the piston is unable to yield to the pressure of the spring because its rod is held by the fork *g*, shown also separately in plan at A. The piston rod is notched on the two sides, and the prongs of the fork embrace the rod at the part where it is reduced in diameter by these notches. The piston is further sustained by the copper wire pin *h*, passed through a small hole in the end-piece *d*, and also through an eye in the piston-rod c^1. The letter *i* indicates another fork on which the spring, when in its compressed state, abuts. This fork embraces the tube *b* in a position in which two slits are cut in the tube on opposite sides. The prongs of the fork project through these notches into the tube, and form stops against which the spring *f* bears. The fork *i* is represented in plan at B. The letter *k* indicates a plank or deck resting on the top of the piston rod c^1, and supported by it ; *l l* are sods concealing the whole of the apparatus. The mechanism, as shown in the drawing is in a safe or inactive condition ; it is rendered active when required by withdrawing the fork *g* by the aid of the wire attached to it. When no longer required, the mine is again rendered passive by withdrawing the second fork *i*, and thereby depriving the spring *f* of its abutment.

"AUTOMATIC INCREASE."

By GENERAL "X."

THE Right Honourable Edward Stanhope, M P. and Secretary of State for War, deserves credit for having solved a problem which has baffled the skill of many mathematicians. The pension, or non-effective list of our two Scientific corps—our Royal Artillery and our Royal Engineers—has, within the last four years, increased at a rate that is neither harmonical, arithmetical, nor geometrical progression.

Mr. Stanhope, however, in a recent exhaustive and comprehensive paper that has been laid before Parliament, gives the interesting solution of the problem. He defines it to be "Automatic Increase." Whether the taxpayers may consider it in that light is another question. Some years ago purchase in the army was abolished at a national cost of about ten millions sterling. As officers of the Cavalry, Guards, and Infantry are now debarred by regulation from making their own arrangements about retirement, the Government of past days arranged a scale of pensions for their benefit.

Speaking roughly, a lieut.-colonel can secure a pension after thirty years' service, and is compulsorily retired at the age of 55 ; a major-general a few years older is also considered, by reason of age, to be unfit for military duty. As a late Prime Minister has been given the credit of managing—or mismanaging—the affairs of the nation up to 76 years of age, and evidently considers himself capable of still doing so, the advantage of the limit of age in our new army system is not very apparent ; it is certainly costly. It causes a flow of promotion for lieutenants and captains, but, on the other hand, it turns loose on the country a large number of majors, colonels, and generals, who, though useful as officers, are practically relegated, at considerable expense to the taxpayers, to lives of idleness, so far as the army is concerned, and may not be without aptitude to get into mischief, for "Satan finds some mischief still, for idle hands to do."

As the Royal Artillery and Royal Engineers never were purchase corps, the abolition of purchase left them where they were. The "Bag of Tricks," which the War Office permanent officials produce at erratic periods, was brought into requisition in 1883, and, by a highly intellectual combination of contrivances, it was decreed that lieut.-colonels of the Royal Artillery and Royal Engineers after five years service in that rank were to be retired, *no matter what their age*. It is true, by some hocus-pocus arrangements, certain officers may, if they please, go on half pay and take the chance of re-employment. As lieut.-colonels of the Royal Artillery and Royal Engineers are usually men with large families, they not unnaturally decline to go on half pay (about £200 a year) to please the War Office highly-paid civilian permanent officials, and have acquired the habit of retiring on pension with the rank of major-general. Rules and regulations which did not govern the army when they entered it are applied to them with a degree of inflexibility that not only inflicts hardship on individuals, but also is a national expense, if not a national blunder. The ages of lieut.-colonels of the scientific corps now being forced out vary from 49 to 51. By the Healthy Male Table of the Society of Actuaries these gentlemen may reasonably expect to continue annuitants for another twenty years, so that the "Automatic Increase" of Mr. Stanhope is taking a practical shape.

Lieut.-colonels of Cavalry, Guards, and Infantry have the advantage, after serving five years in that rank, of succeeding in their turn to one of the 69 Brigade Depôt commands of the United Kingdom. It is part of the Horse Guards branch of the War Office "Bag of Tricks" not to bestow any of these Brigade Depôt commands on any lieut.-colonel or colonel of the scientific corps, and those officers—second to none in devotion and deserts—get less than their share of good things and high commands.

The system has also the baneful result of thrusting out of the public service some of the most able and scientific men in the kingdom. The continuance of this costly system is so questionable that our columns are open to the subject. Between the 1st October 1886 and 30th September 1887, forty-two young lieut.-colonels of the scientific corps will be placed on the non-effective list. As this financial exploit represents an annual charge of about £22,000 for the next twenty years, the "Automatic Increase" problem solved by Mr. Stanhope seems capable of large practical development. We have not calculated the cost of "Automatic Increase" for the scientific corps beyond 1887, but the figures we have given are very startling, but true. In 1888, 1889, and successive years, other lieut.-colonels will have to go after five years' service in that rank, and the increased cost will be *many annual thousands* sterling.

The subalterns and captains of the Royal Engineers appear to have a "high time" so far as promotion is concerned, as a R.E. subaltern now becomes a captain at eleven years' service, and a captain becomes a major at twenty years' service, and the War Office carefully sweeps away the lieut.-colonels in front of the captains and majors after five years' service in that rank.

The late War Minister, the Right Hon. W. H. Smith, introduced an admirable clause into the Royal Warrant of 31st December 1886, to the effect that lieut.-colonels could be recalled to service up to the age of 55. At present the rule is honoured in the breach, not in the observance, and the lieut.-colonels are rapidly merged into "Automatic Increase."

REVIEWS.

Sketches in the Soudan. By Captain Willoughby Verner, Rifle Brigade. (London: R. H. Porter.)

It had always been understood that heroic efforts had been made to reach and relieve General Gordon when hemmed in at Khartoum, but the most valuable and charming volume of "Sketches in the Soudan," by Captain Willoughby Verner, of the Rifle Brigade, will bring home to the mind of the public the extraordinary difficulty of the task which devolved upon the British army on that occasion. Take the first half dozen pictures in the collection, and what a tale they tell. The river is literally "alive" with boulders and rocks, not by ones or twos, but by scores. The boats, of course, were in trouble every moment; sometimes they upset, sometimes they got smashed up, sometimes a hole was broken through their bottom; sometimes the tow-rope would catch in a ledge, and then a soldier or Arab would drop down stream and lift it over; sometimes the branch of the river would end in a *cul de sac*, necessitating a return for a mile or so. Well, indeed, may Captain Willoughby have written, "If only Gordon could have known what efforts were being made to reach Khartoum, it might have lessened the bitterness he felt at being, as he thought, deserted." "As he thought"—would that the sting and bitterness could thus easily be removed from the national disgrace which every patriot must feel at the dilatory indecision which could waste precious days in impotent imbecility and despicable want of decision.

A very good idea can also be formed of the extempore armour plating on the river-steamer *Sofia*, with its "stout logs of wood and old boiler plates clamped on, so as to make the vessel practically bullet proof," with its funnel riddled with shots, leaving apertures for the smoke "all the way up."

Then there are the sickening vultures at work in demolishing the corpses as the latter lie dead and motionless on the field of battle. Further on is poor Stewart's grave, with the plain, simple, yet touching inscription, "Herbert Stewart, died 16 February 1885." But the scenes are "from grave to gay, from lively to severe." There is a corpse of a huge crocodile in the hands of the dissectors, who found the stomach replete with donkeys' flesh, pebbles, and an occasional bullet; there is a cabin composed of mud, the tables being "biscuit boxes," while camel saddles did duty for chairs, and lime juice boxes appeared as "pigeon" holes, that necessary accompaniment of the "official swell."

But there is no need to multiply selections, the whole volume is most charming. It treats of a national incident in a way that a nation admires; there is no attempt at fine writing, no effort to exaggerate, no indulgence in self-laudation; all is plain, simple, unvarnished truth. The pictures are graphic, life-like, and artistic, and the reproduction of them in colours, always a difficult and delicate operation, is sufficiently good for the purpose. Captain Verner must be warmly congratulated upon the appearance of a volume which appeals at once to the imagination and the eye.

The Fall of the Moghul Empire. By H. J. Keene, C.I.E. Third Edition. (W. H. Allen & Co., 13 Waterloo Place, London, S.W.)

It is satisfactory to find that Mr. Keene's most excellent account of the Fall of the Moghul Empire of Hindustan has attained a third edition. This speaks well for the discernment of the public in recognizing the good worth and merits of one of the best writers extant on subjects connected with India; it is also gratifying to meet with evidences that Oriental topics are beginning to command more interest than used to be the case a few years ago, when not one in a hundred could give the slightest account of the most ordinary events in the history of our Eastern Possessions.

The volume is in every way improved. First and foremost in regard to size a step has been taken in the right direction: it is more compact, and as nearly portable as a work of 200 pages is ever likely to be; an index also has been compiled, which adds materially to the value of the text as regards the many who wish to consult the pages for purposes of reference and inquiry rather than pleasure. As to the nature of the book the charm of its style, the accuracy of its information, the brevity of its arrangement, no comment is necessary. The public know all that could be written, and what they know they appreciate.

Prince Alexander of Battenberg. By A. Koch, Court Chaplain to His Highness. (Whittaker & Co.)

Prince Alexander of Battenberg is in many respects a remarkable man. As ruler of Bulgaria he played a conspicuous and noble part in the history of the world. He found a country in the throes of despair, a centre of intrigue, a mass of corruption. He endeavoured to put things right; he gave his people a constitution, they failed to appreciate it; he remodelled his army, they retorted by driving him out of the country. Night and day he devoted his energies to the welfare of his kingdom, yet when in trouble and distress not a hand was raised to protect him. Withal, too, he was most popular; the Bulgarians worshipped him; he could barely appear in the street but that his subjects would unharness the horses and drag along the carriage themselves. Why, then, such a strange, such an utterly unexpected *dénoument*? The answer is simple, but it is conclusive· Russia, Holy Russia, had a finger in the pie. The Emperor at St. Petersburg was of the heaven, heavenly; his agents in Bulgaria were of the earth, earthly. The one was rubbing his hands with unctuous suavity in the salons of piety, the others were in the chamber of vice, rubbing the palms of conspirators with the wages of villany and the earnings of rascality. "*Hinc illæ lachrymæ*"—hence the failure of all attempts to bring peace and quiet into a land which loved repose, but found unrest; hence the perfected intrigues which afforded the good mother of the Tartars the opportunity of saying her say to her naughty children at St. Sophia; hence the seething, bubbling cauldron of

Eastern politics, which sent up to Heaven the savour of treacheries, murders, plots, and the such like, so familiar to the hands, so unwhispered by the tongue of a nation whom to know is to avoid, whom to learn is to detest—England's hereditary foe.

We have said that Prince Alexander of Battenberg was a remarkable man; aye, for after six years of cajolery, chicanery, malevolence and hypocrisy, exiled, humiliated, insulted, and robbed of his throne, he could write to the hand that struck him a letter expressive of his "unutterable devotion" towards the "august person" of the Emperor of all the Russias. We close this most valuable and plain-speaking volume with the words of the preface: "The conduct of Russia, unworthy of a great power, in forcing the Prince to vacate his throne, and other discreditable deeds on Russia's part, are here put on record. Let English readers judge for themselves whether their confidence in the Prince, and their sympathy with him and his people, have been misplaced."

SUMMARY OF ARTICLES IN FOREIGN SERVICE MAGAZINES.

REVUE DU CERCLE MILITAIRE—ARMÉES DE TERRE ET DE MER. (Paris: 37, Rue de la Bellechasse.)

The Colonial Army of Holland—Parliamentary Debates on the (French) Army Bill—Bernadotte—Military Applications of Photography—Infantry-fire on the Field of Battle.

REVUE MILITAIRE DE L'ÉTRANGER. (Paris: L. Baudoin et Cie., 30, Rue et Passage Dauphine.)

Plan for a Defensive Organization of Holland—Chinese Troops and Fortifications in Eastern Turkestan (*continuation*)—The German Septennate and the New Formations of the German Army on 1st April 1887 (*conclusion*).

REVUE MARITIME ET COLONIALE. (Paris: L. Baudoin et Cie., 30, Rue et Passage Dauphine.)

The Austrian Expedition to the Island of Jan-Mayen (*conclusion*)—The Use of Oil at Sea—The Legion of Honour (*conclusion*).

JOURNAL DE LA MARINE. Le Yacht. (Paris: 50, Rue Saint Lazare.)

Recent Naval Construction—The United States Navy—The Armour of the *Iver-Hvitfelt*—The Torpedo Cruiser *Fearless*.

JOURNAL DES SCIENCES MILITAIRES. *Revue Militaire Francaise.* (Paris: L. Baudoin et Cie., 30, Rue et Passage Dauphine.)

The Officer and the Superior Cadres (*continuation*)—The Command of the French Army: Yesterday, To-day, and To-morrow—Infantry Tactics: the Supply of Ammunition—French and German Horses—Army Transport (*continuation*).

NEUE MILITAERISCHE BLAETTER. (Potsdam: Villa Schwanenbrücke: Post, Klein Glienicke.)

Divisional Cavalry or Cavalry Division?—The Attack and Defence of Ships—Cavalry Sketches, III.—The Campaign of the Great Elector Frederick William against the Swedes in 1675—The New French Gunboat *Gabriel Charmes* (from the *Illustrated Naval and Military Magazine*)—The Pfund-Schmidt Land Torpedo (from the *Illustrated Naval and Military Magazine*)—French Opinions on the Value of Fortresses—The New German Infantry Equipment—The Military Pigeon Service of Italy—Considerations on the Campaign of 1859 in Italy, XII.

MITTHEILUNGEN UEBER GEGENSTAENDE DES ARTILLERIE- UND GENIE-WESENS. (Wien: Druck und Commissionsverlag von R. v. Waldheim.)

On the Use of Artillery—A Method of Limiting the Recoil of Field-Guns—A New French Armoured Turret—The (Austrian) Company Ammunition Wagon Pattern, 1886.

RIVISTA MARITTIMA. (Roma: Tipografia del Senato.)

Italian Emigration to South America—Old and New Steamships—The Italian Naval Estimates—Notes on Tonquin—The French Torpedo-Boat *Ouragan*.

RIVISTA DI ARTIGLIERIA E GENIO. (Roma: Tipografia e Litografia del Comitato d Artiglieria e Genio.)

Portable Iron Bridges—Austrian Artillery Tactics—German Experiments with Gun-Cotton Shell—The *Gabriel Charmes* (from the *Illustrated Naval and Military Magazine*)—The Submarine Cable from Massowah to Assab, and from Assab to Perim.

REVISTA CIENTIFICO MILITAR. (Barcelona: Bailen, Numeros 25 y 27.)

Optical Telegraphy (*continuation*)—The Carlist War—Considerations on the European Frontiers (the Austro-German Frontier)—The Battle of Moskowa—Military Ballooning—The Explosion of a Melinite Shell.

AT THE PLAY.

Most of the West End theatres will have closed their doors before these lines are in print, and those that are still open have for the most part passed, for the time being, into the hands of other than their usual occupants.

Mr. Henry Irving and Miss Ellen Terry have started off on a tour in the provinces, to be extended over many months and to include America.

The Gaiety has been occupied since the end of June with Mr. Herman Merivale's adaptation of Mons. Delpit's "Mdlle. de Bressier," in which Mrs. Brown Potter gives the British public a second opportunity of judging of her powers. The experiment is perhaps rather a happier one than was the production of "Man and Wife" at the Haymarket, but we cannot say that Mrs. Brown Potter has made much advance in her art, or that the adapter has been able to improve upon the weakly-constructed French original. To start with, the actress' accent is so greatly against her, and her consequent mispronunciation of the English language so irritating, that we do not see how she can succeed in pleasing a London audience until this has been modified; there is much mannerism, too, in her acting and movements, and this is harder to overlook than certain signs of inexperience, which may reasonably be expected to give way to practice. Mrs. Brown Potter succeeded in making some of the situations telling, and she knows how to dress. The cast is an unusually and unnecessarily strong one, absurdly small parts being allotted to such excellent actors as Mr. Fernandez, Mr. Dacre, Mr. Maclean, Miss Amy Roselle, and Miss Fanny Brough; while Mr. Kyrle Bellew represents the sculptor-hero, and makes the most of it. The strength of the cast does not, however, avail to support the interest of the plot, which breaks down just when it should be strongest, and after building up obstacles to the union of the lovers, lets them all melt away without any adequate reason.

At the Globe, after more than one postponement, "The Doctor," Mr. Burnand's version of "La Doctoresse," was produced in the middle of last month, and proved an amusing if somewhat an unequally written piece. As is usual with adaptations from the French, it has had to be somewhat "toned down," but the result has not been, as is so often the case, a complete evaporation of the original flavour. Miss Enson's representation of the title *rôle* is strikingly free from exaggeration, and if hardly pronounced enough in the first two acts is specially good in the third; unfortunately this moderation serves to throw into higher relief than usual the extravagances that so often mar the clever performances of some of her companions, so that the unequal mixture of farce and comedy which has been often seen of late at the Globe is more prominent than ever. Mr. Penley is, however, as usual, very amusing, and is admirably suited in the part of the unfortunate husband. Mr. Hill has an unnatural butler to represent, and can hardly be expected to make much of the part. Mr. Kemble gives a rather highly coloured rendering of an Italian Count, but does good service to the piece, and Mr Stewart Dawson makes the most of the small part of a medical man. The ladies' parts are slight—with the exception of the Doctor herself—but are adequately filled. Miss Victor being quite at home in her part, and Miss Cissy Grahame acting with that quiet thoroughness which is observable in all she does. Her performance in M. Jerome's charming little opening piece "Barbara," which is again on the bills, is one of those that deserves a larger audience than usually assemblies for a *lever du rideau*.

At the Princess' under the management of Miss Grace Hawthorne, a "thrilling drama" has been produced with the suggestive title of "Shadows of a Great City." Messrs. J. Jefferson and L. R. Sherwell are responsible for the melodrama, the story of which is ingeniously contrived so as to lead on from incident to incident with much interest. Mr. Harry Nichols and Miss M. Rorke are both included in the cast, and the scenery is well painted.

"Held by the Enemy," which has been displaced by the above, is now to be seen at the Vaudeville, where Miss Kate Rorke supplies Miss Alma Murray's place as the heroine, and some other slight changes have been made in the cast.

Miss Melnotte has re-opened the Comedy with a revival of that old favourite "The Colonel," and Madame Sarah Bernhardt has had a short season (now concluded) at the Lyceum, during which several of her favourite parts have been once more put before a London audience, but no novelty has been brought out.

Pieces which have run for some time.

Criterion.—"David Garrick," comedy. Mr. Charles Wyndham, Mr. G. Giddens, Miss Rose Saker, Miss Mary Moore, &c., and "Who Killed Cock Robin?"

Prince of Wales'.—"Dorothy," comic opera. Miss Marie Tempest, Miss Florence Dysart, Mr. Arthur Williams, Mr. Hayden Coffin, &c., and "Jubilation."

Savoy.—"Ruddigore," comic opera. Mr. G. Grossmith, Mr. R. Barrington, Mr. D. Lely, Miss Jessie Bond, Miss R. Brandram, &c., and "The Carp."

Vaudeville.—"Held by the Enemy," Mr. Charles Warner, Mr. Yorke Stephens, Mr. Fred Thorne, Miss Kate Rorke, Miss Annie Hughes, &c., and "Two to One."

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THE MOST DISTINGUISHED ORDER OF ST. MICHAEL AND ST. GEORGE.

BY MAJOR J. H. LAWRENCE-ARCHER.

THIS Order is now conferred for personal services to the Crown, chiefly in connection with the Colonial possessions of the British Empire, and also in relation to its foreign affairs.

It originated under the following circumstances. On the conclusion of the Treaty of the 5th November 1815, between the Allied Sovereigns, it was decided to erect the Ionian Islands into an independent state, under the exclusive protection of England; while, under the Seventh Article of the Treaty of Paris, the Island of Malta, with its dependencies, was constituted an integral portion of the British Dominions. In consequence, to commemorate the establishment of British power in the *Mediterranean*, King George III., or, rather, the Prince Regent, (27th April 1817,) instituted this Order, although the Statutes were not framed, it is said, until the following year. These Statutes were modified in 1826, but were superseded by others in 1832, since when the Constitution of the Order has undergone several changes. It was enlarged and extended, 4th December 1868, and 30th May 1877, "for such natural-born subjects of the United Kingdom as may have held, or shall hold, high and confidential offices within Her Majesty's *Colonial* possessions"; and again, in 1879, for the reward of persons rendering good service to the Crown, "in relation to the *Foreign* Affairs of the Empire."

These modifications and alterations have been necessitated by the cession of the Ionian Islands to Greece; and also, by the vast expansion of the Colonial Empire of Great Britain during Her Gracious Majesty's prosperous reign.

Under the original Constitution of the Order, it was open, 1st, to "Natives of the Ionian Islands and Malta, who might be eminent by their talents, merit, virtue and loyalty"; 2nd, to "Natives of the United Kingdom holding high posts in the Civil, Naval, and Military Service in the *Mediterranean*." According to the original Statutes, there were, with the Sovereign, and Grand Master (generally the Lord High Commissioner), 15 Knights Grand Cross, 20 Commanders, and 25 Companions; and the officers of the Order were "the Prelate, Chancellor, Secretary and Registrar, the King of Arms, and Officer of Arms, Malta."

But, under the latest reorganization, the establishment is—50 Knights Grand Cross, exclusive of extra and Honorary Members, 150 Knights Commanders, and 260 Companions; and, according to lists published during the present year (1887), exclusive of the Sovereign, and the Grand Master (H.R.H. the Duke of Cambridge), and also the *extra* Grand Crosses of the Blood Royal, these numbers are shown to be closely maintained.

The Officers of the Order are—the Prelate (a Colonial Bishop), Chancellor, Secretary, King of Arms (Garter) and Registrar. The "Chancery" is at the Colonial Office.

The Members of the Order have precedence immediately after the corresponding classes of the Order of the *Star of India*, instead of, as formerly, after those of the Order of the *Bath*. The Grand Master is the First and Principal Knight Grand Cross.

Amongst other privileges, the Knights Grand Cross are entitled to bear supporters, and to encircle their arms with the Collar, Ribbon, and Motto of the Order;

the Commanders to encircle their Arms with the Ribbon and Motto; while the Companions may suspend the badge from the base point of the escutcheon.

The Badge* of the Order is composed of a white enamel star of seven double-pointed branches like those of the Maltese Cross (but probably increased to *seven* in allusion to the Ionian Islands), gold edged, having on the *obverse*, within a blue enamel fillet inscribed "*Auspicium Meliora Aevi*" (the Motto of the Order), the figure of St. Michael crushing the Satanic Dragon under foot; *reverse*, the Equestrian St. George slaying the Dragon. Surmounting the whole, the Crown of England.

The Collar is composed of alternate (armorial) lions of England, Maltese Crosses of *white enamel*, and the alternate ciphers "S.M" and "S.G."; while the two central links are formed of winged lions, confronting each other, and grasping, respectively in the right and in the left "jamb," a sheaf of seven arrows. Over these two lions' heads, is the Imperial Crown. The whole is of gold, except the Crosses.

The Star of a G.C.M.G. is of seven silver rays with a smaller golden one between each, and over all is St. George's Cross. The centre is similar to that of the *obverse* of the Badge.

The Badge of a G.C.M.G. is attached to the *Collar* or worn at the left side attached to a broad striped ribbon (blue, with a central red stripe*) passing from the right shoulder.

The Commanders wear the Badge attached to a narrower ribbon round the neck; and on the left breast a Star of four principal rays, with a Cross of eight points, saltirewise, of silver, and with the same centre as G.C.

The Companions wear a similar but smaller Cross, and narrow ribbon at the button-hole.

The "Mautte" is of full light blue satin, lined with scarlet silk, and tied with cords and tassel of blue scarlet and gold. The "Chapeau" is of blue satin, scarlet lined, and with black and white ostrich feathers.

This Order is of a conspicuously representative character, and amongst its members are found eminent names that at once remind us of the vast expansion of the British Empire during the auspicious Victorian age.

* There is also the smaller oval jewel, similar to the centre of the Badge.

* Schulze, in his work, gives also (erroneously) white stripes.

NAVAL AND MILITARY NOTES AND QUERIES.

EFFECTIVE STRENGTH of the Regular Army, by ranks, during the year 1886:—

Officers, 7,218; warrant officers, 682; sergeants and farriers, 12,736; trumpeters, drummers and buglers, 3,361; rank and file, 179,808; total, 203,805.

AVERAGE STRENGTH of the Army at home and abroad during the year 1886:—

	Officers.	Warrant Officers.	Men.
Cavalry at home	520	42	11,861
,, abroad	268	21	6,024
Roy. Art. at home	594	57	15,675
,, abroad	644	24	16,609
Roy. Eng. at home	483	63	3,758
,, abroad	395	8	1,433
Infantry, &c. at home	1,959	279	62,766
,, abroad	2,355	188	77,779
All arms at home	3,556	441	94,060
,, abroad	3,662	241	101,845

RECRUITING RETURNS for the year 1886.—Persons served with notices by recruiters, 71,786; rejected prior to attestation, 20,183; failed to come up for attestation, 9,725; other causes of non-appearance, 79; attested, 41,799; rejected, 2,410; deserted, 370; other causes, 48; passed into the service, 38,953. Of these 30,764 were raised in England, 3,780 in Scotland, 4,409 in Ireland.

NUMBER of TRIALS by COURT-MARTIAL during 1886, in each arm of the service at home:

	Gen. Courts-Martial.	Dist. C. M.	Reg. C. M.	Total.
Household Cavalry	0	22	13	35
Cavalry of the Line	0	580	167	747
Royal Artillery	1	804	446	1,251
Royal Engineers	0	66	44	110
Foot Guards	0	243	97	340
Infantry of the Line	1	3,344	1,729	5,074
Com. and Trp. Corps	0	60	35	95
Ordnance Store Corps	0	2	6	8
Medical Staff Corps	0	65	18	83
Grand Total	2	5,186	2,555	7,743

THE FRENCH CUIRASSIERS.

Part I.

THE first French Regiment of Cuirassiers was raised by Richelieu on 24th January 1638. The Régiment des Cuirassiers du Roi, as the new corps was called, was the 13th of the forty-five regiments then forming the native cavalry of France. Regimental organization was only of recent introduction. The French cavalry had been organized prior to 1635, on the model of the old *compagnies d'ordonnances* of Charles VII. and his successors, in independent squadrons commanded by semi-independent captains. This system involved not only defective training and discipline, but inability on the part of the various units to move in large masses. Despite the most determined opposition Richelieu resolved to completely reorganize the cavalry. In 1635 the existing squadrons were united to form twenty-four regiments of cavalry, one of mounted carbineers, and six of dragoons, and in 1638, after a series of changes, these were increased to a total of forty-five French and twenty-five foreign corps, excluding the mounted carbineers. One of these corps was, as has been said, the Régiment des Cuirassiers du Roi, the command of which was given for many years to members of the Aumont family.

The title "Cuirassiers" does not imply that the formation of the new regiment marked an era in the history of French cavalry. In 1638 all regiments of heavy cavalry wore armour, although signs were not wanting that defensive equipment of every kind was rapidly falling into disfavour. An *ordonnance* of 1635, for instance, directs captains to secure the services of "bons et valables hommes de guerre, bien montés, armés et *cuirassés* à l'épreuve de la carabine," and a similar regulation of 1938 runs: "Veut et ordonne Sa Majesté qu'aucun soldat ne puisse estre passé à la moustre sans être *armé de la cuirasse* devant et derrière." In 1680, however, the cuirass had already become the special equipment of the Régiment des Cuirassiers, although the officers of all corps were still required to retain their defensive arms.

In 1661, after taking part in all the preceding campaigns, the regiment was reduced to one "company"; but was raised again four years later to its full strength, under the title of the Cuirassiers du Roi.

The passage of the Rhine in 1672, at the head of the French army, was its first important achievement. Louis XIV., who commanded in person, gives the following account of the feat in a letter to the Queen of France: "The Prince (Condé) having given me an account of the fords and passages which I had ordered him to discover along the Rhine from Schenck to Arnheim . . . I gave orders for drawing 1,000 foot, besides horse, dragoons, artillery, and the boats for transportation. I had with me a guide who knew thoroughly all the fords of the river, and upon his information I ordered the Count de Guiche to take soundings opposite a place called Tolhuys, which, upon trial, he found fordable. I placed two batteries upon the bank of the river to assist the passage of our troops, and commanded 2,000 horse of the left wing to cross, under the command of the Count of Guiche. The regiment of Cuirassiers was to pass first. The ten or twelve foremost men who had passed over, sometimes by fording and sometimes by swimming, espied three squadrons of the enemy advancing through hedges and willows, and were soon briskly charged by the officers of the first squadron. They drew back a few steps into the river to allow their supporters to come up, and then advanced so resolutely that the second and third squadrons discharged their muskets in the air, and ran. The first squadron, which had hitherto made a good stand, was now forced back as well as the others, a result to which the continual fire of our artillery not a little contributed. The rest of the horse now passed over at the ford, and while one party of them advanced against the enemy, the remainder stood in battle array on the banks of the river. This action was accompanied with all the success and glory we could desire, having lost very few horse in the passage."

As a matter of fact the loss seems to have been much greater than the King cared to acknowledge. The French in crossing were exposed to the fire of Tolhuys and of the Dutch army, and the Rhine was soon covered with the bodies of killed and wounded. A young cornet of the Cuirassiers, named Brassalay, had his horse sho under him in mid-river, and although booted a encumbered with his heavy cuirass, he swam to opposite bank with one hand while carrying his col with the other. The Colonel of the regiment, Count Revel, received five wounds in the passage.

Two years later the Cuirassiers took part in the batt

of Senef, where, under the eyes of Condé, they charged and routed the Baden and Holstein Cavalry. During the war of the Spanish Succession they served in Italy, whither they were again sent in 1733 and 1734. In 1740 the strength of the regiment was as follows:—1 lieutenant mestre de camp, 1 lieutenant-colonel, 1 major, 1 aide-major, 10 captains, 12 lieutenants, 6 cornets, 12 quarter-masters, and 300 troopers, forming three squadrons of 12 companies of 25 men each. In 1743 the Cuirassiers du Roi were at Dettingen, in 1745 at Fontenoy; and they took a prominent part in the numerous sieges in which the French army was at this time engaged. Their next important achievement was at Minden, where their lieutenant-colonel, the Chevalier de Ray, was seriously wounded. In 1763 the regiment was again reorganized and increased to four squadrons, and many changes were made in its effective during the ensuing twenty years. In 1788 it consisted of three squadrons, each of two companies.



The Cuirassiers at the Passage of the Rhine (1672).

On 1st January 1791 the whole French army was reconstituted, and the old regimental titles suppressed. The Régiment des Cuirassiers du Roi, while retaining its old uniform and equipment, thus became the 8th Regiment of Cavalry.

The Cuirassiers began their new career in the north. Their strength was fixed at three squadrons of two companies—in all, 28 officers, 439 men, and 420 horses. Two of these squadrons were sent into the field in 1792, but their opening achievements were not encouraging. On the first day on which the enemy was seriously encountered, the Cuirassiers, in common with several other infantry and cavalry regiments, were seized with panic and fled back to Lille, from which they had marched a few hours before. The Colonel and Lieutenant-Colonel of Cuirassiers, and some officers of Chasseurs, were able to rally only a dozen men, with whose help they brought back one gun.

In the campaign that followed, the Cuirassiers fully retrieved this disgrace. At Charleroi (3rd June 1794) they completely defeated the enemy's light horse, Hussars and Cuirassiers. At Fleurus (29th June 1794) some troopers of Cuirassiers rescued the Commander-in-Chief, General Jourdan, who had fallen into the hands of the enemy.

During the Consulate the 8th Regiment of Cavalry fought on the Danube, and especially distinguished itself at Hohenlinden.

The successes of the Cuirassiers in the campaign of the Revolution were so general that Napoleon resolved, in 1802, to raise several new regiments. In September he wrote as follows to General Berthier, then Minister of War: "I desire you, citizen minister, to submit to me a scheme for reducing the regiments of heavy cavalry to 20—two of which should be carbineers—all four squadrons strong. The last six of the now existing regiments should be broken up to furnish a squadron to each of the first eighteen proposed regiments. Of the eighteen regiments, the first five are to wear the cuirass, in addition to the eighth, which is already equipped in this manner—making in all, six regiments with, and twelve without, cuirasses."

In the following December the number of cuirassier regiments was increased to eight, and in September 1803, to twelve. The title of "regiment of cavalry" was now suppressed, and under the name of "Régiments de Cuirassiers" the twelve new corps became a separate and independent branch of the service.

In August 1805 the army assembled for the invasion of England became the *Grande Armée* which Napoleon launched against the Russo-Austrian Coalition. It

honours of the day. Together with the Dragoons, they were sent in pursuit of the Prussian infantry, whose orderly retirement was changed by them into a disastrous flight. The corps of Rüchel was almost annihilated, and two Saxon squares were charged simultaneously and broken. An immense number of prisoners were taken on the field and thousands surrendered in the pursuit, which was actively carried on into the streets of Weimar. On the whole the campaign involved less hard fighting



Officer of 8th Regiment of Cavalry (1791).

than hard marching on the part of the Cuirassiers. From the 8th to the 14th of October the Nausouty division had marched over 170 kilomètres, the d'Hautpoul division nearly 180. The latter, in its march from Auma by Roda to Jena, and thence to Weimar, covered in one day at least 70 kilomètres.

Without a moment's delay Murat followed the defeated army from Weimar to Berlin, to Stettin, and ultimately to Lubeck, near which place Blücher surrendered with 10,000 men.

The Cuirassiers arrived just in time, at the battle of Hof (6th of February 1807), to take an important and decisive part in the action. Murat, who was in command, sent the following account of the engagement to the Emperor on the evening of the battle :—

"Sire, the cavalry of your Majesty has deserved this day all the praise you have so often bestowed upon it. The dragoons, charging the Russian cavalry, swept all before them, and captured two guns ; but exposed to the fire of three regiments of infantry, were obliged to abandon them to the enemy. The 1st Regiment of Cuirassiers charged in its turn, but was forced to fall back before a large body of infantry and cavalry. I then advanced with the whole d'Hautpoul division. The moment was a critical one, and a general cheer was heard : '*Vive l'Empereur ! rallions-nous au prince!*' In the charge that followed, everything was swept before us, cavalry, infantry and guns, and the village was captured. Meanwhile General Legrand who supported us

At Heilsberg (10th June 1807), General Espagne's division of Cuirassiers executed a series of charges, which called forth the admiration of the greatest cavalry leader of the age. Riding up to Colonel d'Avenay, whose sword was covered with blood, he complimented him upon the gallantry of his regiment. "*Mon prince*," said the colonel, "if you review my regiment you will not find a single cuirassier whose sword is not as red as mine." One captain of the 4th Cuirassiers received no less than fifty-two wounds, and refused to leave the field until he fell from his horse through weakness.

On 21st May 1809, at Essling, Marshal Lannes ordered General Espagne to "charge home" with his Cuirassiers. This expression was deeply resented by the general. "The Cuirassiers," he said, "are not accustomed to charge otherwise." At the head of sixteen squadrons he attacked and captured a battery of fourteen guns, and, charging the infantry, broke two of their squares. In this engagement, however, the Cuirassiers lost their leader and one-fourth of their effective.

The 22nd April 1809 was an eventful day in the history of the French Cuirassiers. The cavalry at Eckmühl consisted of the Nausouty and St. Sulpice divisions of Cuirassiers, 40 squadrons strong, besides 34 squadrons of light cavalry—18 Bavarian and 16 Würtemberg. The ground, much broken up, was very unfavourable for the use of cavalry, and the first attacks of the light horse were repulsed by the Austrians. They reformed, however, to the right and left of the Cuirassiers, who were stationed on a line of heights, while the French infantry attempted to take up a position on the two wings. The Austrian cavalry, seizing the opportunity afforded them by the disorder of the French line, pre-



Private of Cuirassiers (1805).

pared to charge. The Cuirassiers did not await the onslaught. Supported by the Bavarians and Würtembergers, they impetuously attacked the first Austrian line and broke it, but were met and checked by the cavalry reserve. The French, however, soon recovered themselves, and again advanced at the trot. "Their movements," says Count von Bismarck, in his *Ideen über Tactik der Reiterei*, "were so brilliant that the infantry of Marshal Lannes, then defiling on the heights, halted to applaud." The charge of the Cuirassiers was delivered directly against the two foremost regiments of the Austrian cavalry reserve. The latter retired on Eglofsheim, where the whole available Austrian cavalry—forty-four squadrons, including twelve of Cuirassiers—were rapidly formed up to meet the French advance. The night was already falling, when the two lines advanced against each other. At a distance of thirty or forty paces, the Austrians were received with a withering fire from the French Carbineers, and were immediately afterwards charged by the Nausouty Cuirassiers. Although, says Von Bismarck, the enemy advanced with great resolution, they were unable to withstand the shock. Eight squadrons of French Cuirassiers broke through their line, and a hand-to-hand fight ensued. The issue, however, was not long in doubt. The French were not only superior in numbers, but were protected by their double cuirasses, whereas the Austrians wore only breast-plates. So soon as the Austrian line was broken, the backs of the retreating troopers were exposed to the sabres of their pursuers. The Austrians were driven from the field, several squadrons on their right were thrown into a swamp, and more than 2,000 fell by the sword.

At Wagram (6th July 1809), the French heavy cavalry suffered a serious reverse. The Duke of Padua, who was in command, was ordered by Davoust to attack the Austrian infantry, strongly posted on rising ground. The Duke hesitated, believing that a mistake had been made, but on receiving the order for a second time, gave the word "Charge!" The Austrians fell back slightly at first, but they regained confidence when the difficulties of the attacking force became apparent. The latter was broken up in small parties, and, from the nature of the ground, was unable to reform; and although the Cuirassiers reached the Austrian position, their line was broken, and individual efforts were of no avail. After a short struggle they were driven down the hill with immense loss. Of four colonels, three were wounded in this engagement. Later in the day, the 3rd Division of Cuirassiers joined the cavalry of Grouchy and Montbrun, and avenged their defeat by a series of brilliant charges on the infantry of the Austrian left. Davoust profited by the advantage gained in these engagements to execute a general turning movement, by which the enemy were completely driven from their positions.



THE CUIRASSIERS PURSUING THE PRUSSIAN ARMY AT JENA (1806).

For many years the Emperor Napoleon had intended to arm the Cuirassiers with the cavalry musket. In December 1805, for instance, we read in an order to Marshal Berthier, "Cavalry muskets are to be furnished to all regiments of Cuirassiers from the arsenal of Vienna." It was not, however, until 1811 that measures were taken to obtain this result. In November of that year Napoleon wrote to General Clarke, the Minister of War: "It is, of course, apparent that the Cuirassiers can use the carbine only with difficulty, but it is, at the same time, in the last degree absurd that 3,000 or 4,000 of these brave men should be surprised in their cantonments, or stopped on the march, by two companies of voltigeurs. It is, therefore, indispensable to arm them. The cavalry regiments of the *ancien régime* carried small arms which they used, not as carbines but as muskets. I desire you, therefore, to form a council of cavalry officers to come to some decision on this matter. I cannot accustom myself to see 3,000 *élite* cavalry at the mercy, in the event of a sur-

prise, of a few light troops, or liable to be checked on the march by a handful of bad shots posted behind trees or houses. My intention is that each man should have a short musket, to be carried in the most convenient manner."

In January 1812, the Emperor wrote to Marshal Davoust: "*Mon cousin*, you have received a decree for arming the heavy cavalry with muskets, to be carried as they were carried formerly. Take particular care that your Cuirassier regiments are provided with these muskets, which they should receive early in February; and make the necessary alterations in the saddles. Train your regiments in loading and firing, and in the elements of dismounted drill, so that if they should enter a village they may be able to dismount and act together."

The wishes of Napoleon were at length realised, but the Cuirassiers seem still to have relied solely on their sabres in the hour of danger.



The Cuirassiers at Eckmuhl (1809).

During the campaign of 1812, the Cuirassiers formed, in combination with 2 regiments of carbineers and 5 of lancers, 5 divisions of 3,500 men each. "On no account," wrote Napoleon to General Clarke, the Minister of War, "are the Cuirassiers to be employed as orderlies. This duty is to be performed by lancers, even in the case of generals. When the Cuirassiers charge columns of infantry, the light horse are to be placed in rear, or on the flanks, to pass through the intervals of regiments and fall on the enemy when broken."

Thus organized, the Cuirassiers were attached to the cavalry reserve, which consisted of four corps—three of 3 divisions and one of 2 divisions. They took a prominent part in the earlier operations of the campaign, but their most signal achievement occurred at Moskwa, where they captured the grand redoubt, the key of the Russian position. Murat, who commanded the cavalry reserve, gives the following account of the engagement: "On the night of the 6th and 7th I received the general instructions for the battle, and carried them out. At 5 o'clock on the next morning the 1st, 2nd, and 4th corps of reserve cavalry were stationed at the foot of the redoubt in column of brigade. The 1st corps of reserve was intended to support the attack of the 1st *corps d'armée*, the 2nd corps to support that of the 3rd *corps d'armée*; the 4th was held in reserve in the centre available to reinforce either corps. When the signal for attack was given, all moved forward in this order. The Emperor having heard that the Prince of Eckmühl was wounded, instructed me to relieve him of the command of the 1st *corps d'armée* if he were unable to retain it. I returned to His Majesty to report that the wound was simply a bruise, and that the Prince was able to continue in the command of his corps. A moment afterwards His Majesty commanded me to find out what had occurred at the redoubts. When I arrived our light troops had already entered the second redoubt, out of which they had, however, been driven. Some Russian cuirassiers, following our light infantry, were met by a hot musketry-fire, and taken prisoners by the Bruyère Division. At the same time, a charge of the Würtemberg regiment of the Beurmann brigade broke the Russian infantry, and the second redoubt was ours. The whole of the 1st corps of cavalry was ordered to take up a position behind the redoubts, while the 4th corps crossed a ravine and attacked the village, the most important position of the enemy, which was defended by infantry and artillery. General Nausouty, at the head of the 1st Cuirassier Division, charged all troops to the right of the redoubts, and cleared the ground as far as the village. At this moment His Majesty sent me the Friant Division. General Dufour passed the ravine at the head of the 15th Light Infantry Regiment, drove back the enemy, and carried the heights in front of the village. General Friant supported this movement with the rest of his division, formed in reserve by brigades. I then instructed General Caulaincourt to cross the ravine at the head of the 2nd corps of cavalry reserve, and, if possible, to capture the grand redoubt,

which, taking us in flank, was causing us serious loss. This order was executed with equal promptitude and courage. At the head of the 2nd Division of Cuirassiers the General swept all before him, until, finding he had passed the redoubt on his left, he turned and captured it with the 5th Cuirassiers. This brave officer died gloriously in the redoubt itself, which was successfully held by the Cuirassiers until the Gérard Division came up. In the meantime, dense masses of infantry, composed of the Russian Guard and its reserve, supported by a strong body of cavalry, advanced to retake the village; but they were driven back by the guns of the cavalry and the Friant Division—80 in number—placed in battery."

On 19th October the retreat from Moscow commenced. At Smolensk, about three weeks afterwards, the Emperor gave orders for the formation of a corps of 6,000 cavalry, all that remained of the splendid division with which Murat had opened the campaign. The remnants of the 1st and 2nd Divisions of Cuirassiers united their strength to form one piquet regiment. In a similar manner a second piquet regiment was formed from the 3rd and 4th Divisions. In the 29th bulletin of Napoleon we read: "Our cavalry is so weak in horses that it has been found necessary to form four compa men each from officers who are still mounte are now performing the duties of captains, those of non-commissioned officers."



PRIVATE OF CUIRASSIERS (1812).

At the passage of the Beresina (28th No the Cuirassiers delivered a charge ever the annals of French cavalry. Count general in the Russian service, gives

description of this feat of arms: "To our left, in the middle of a wood, and about a verst from the high road, were two small clearings occupied by a part of the 18th Division under Prince Scherbatov. Upon these troops the French General Doumerc made a totally unexpected attack at the head of two regiments of Cuirassiers. Debouching from the trees and undergrowth, he rapidly formed up his squadrons at the entrance of the clearing, and charged our columns. More than 600 men were sabred, and as many taken prisoners, although the St. Petersburg dragoons came to their help. This brilliant charge does the greatest honour to General Doumerc and his Cuirassiers. It is a splendid passage of arms, and in general the whole affair is highly creditable to the French, who were numerically very inferior to us."

Slowly, and with difficulty, recruits were sent from France to raise the effectives of the cavalry regiments for the campaign of 1813. The Cuirassier regiments were gradually completed to a strength of from two to three squadrons each.

At Reichenbach, on 22nd May, General Lefebres-Desnoettes at the head of 1,500 lancers, French and Polish, charged and broke the enemy's cavalry. The Russians, believing the French cavalry to be unsupported, pushed forward several divisions, but were met by General Latour-Maubourg with his French and Saxon Cuirassiers, and driven back in confusion.

On the 28th following, the corps of Sébastiani, consisting of two divisions of light cavalry, and one of Cuirassiers, intercepted a convoy near Sprottau, capturing 22 guns, 80 caissons, and 500 men.



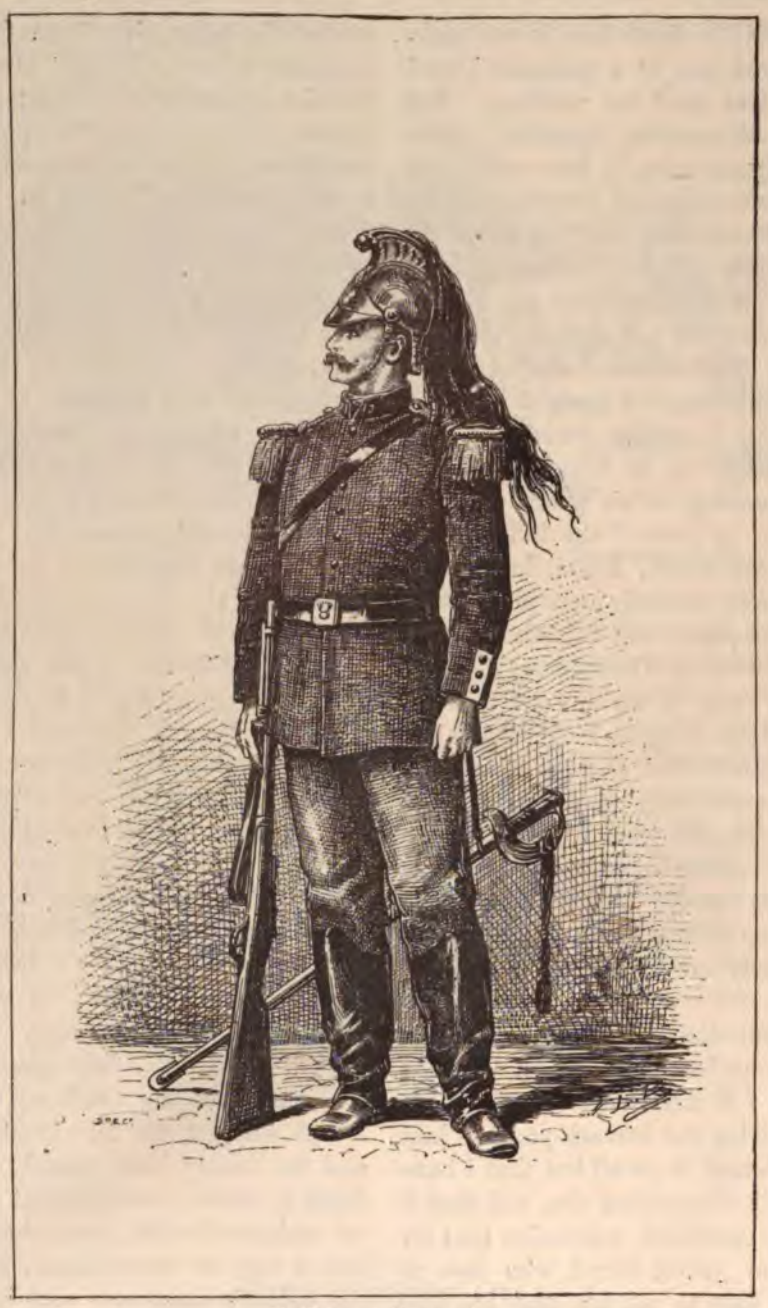
Capture of the Grand Redoubt at Moskwa by the Cuirassiers (1812).

At the battle of Dresden (27th August 1813) Murat, at the head of the Cuirassiers, completely broke the right wing of the Austrians. Charging the Austrian squares, which were unable to fire owing to the heavy rain, the Cuirassiers hewed their way with the sword through the triple row of bayonets, and decided in great part the issue of the battle. Nearly 5,000 Austrians were killed, 12,000 made prisoners, and 30 guns captured by the Cuirassiers alone.

(To be continued).

of drums, to cut every button off the man's uniform, to pluck the number of the regiment from his collar and kepi which he held between his fingers, there was not a dry eye among the officers. Again the word of command rang out, the man was slowly taken along the whole of the line, and handed over to the gendarmes waiting for him. But suddenly there was a clatter of arms against the ground. Two young recruits in the first rank had fainted. And then the "ceremony was over." "What has he done?" I asked of the bugler on guard, who stood admiring my bag with a sly smile on his lips. "Nothing much," came the reply; "he has struck his corporal, and he has got ten years for it." "What would they have done to him if he had struck his captain?" I asked myself.

After that you may well imagine my exceeding politeness to the brigadier—a brigadier, let me tell you, in case you don't know, is simply another name for a corporal of cavalry—who was deputed to take me to the captain-paymaster, and who, I have found out since, is my own brigadier, eating, drinking, and sleeping in the same room with us. He accompanied me in all my goings from pillar to post, which I had to perform before I could fairly consider myself a unit of my regiment. My courtesy missed its mark, however, for his coolness increased in a direct ratio to my attempts to



A French Dragoon.

ingratiate myself. This went on for something like forty-eight hours, and I began to be very uneasy. At last I thought I'd consult Frank de Varbot, who is one of our quartermasters, and of whom I'll tell you more some day. He at once gave me the key to the enigma. "You have made some blunder, I am sure," he said, "for I happen to know your brigadier, and he is by no means a bad sort." In vain I protested, taking care to lay great stress upon the correctness of my behaviour, above all about my ultra-politeness. "That's it; you have been too cursedly polite, and he mistook your politeness for impertinence," he exclaimed. "Go and ask him to take a *litre* with you at the canteen, and you'll be all right." I did as de Varbot told me. It was what my brigadier expected; a word from the heart. "Is there anything more beautiful than the Amphora?" enthusiastically asked an art professor at the Sorbonne. "Yes," thundered Jules Vallès, "the litre, especially when it is full." My brigadier shares the opinions of the author of *Les Refractaires* in that respect. Luckily that I found it out in time.

Now don't infer from all this that my brigadier is a wine-bibber, or a brute, or a sham disciplinarian. By no means. If one of his men attempted to beguile him from his duties, were it even by the offer of a rum-curaçoa, it would be the worse for that man. My familiar, and what he thought spontaneous, offer had simply flattered his peasant's vanity, just because it was evident that, as my brigadier, he was conferring an honour upon me, the recruit, by chinking glasses with him in the canteen.

But the bugle sounds for something, I don't know for what. I hope it is not to get on horseback, because, in the state of my attire, such a thing would be fatal, and I might be court-martialled for an outrage of public decency. At any rate, I must break off, so *au revoir*. Your friend, PAUL.

DEAR FRIEND,—Of course I am adding hourly to my experiences. But though justifiably proud of my increase in knowledge, I am bound to confess that my latest venture in the unexplored regions of gastronomy is not a success. Decidedly, garlic sausage after meals does not agree with me. "You have indulged too freely in that rather pungent dainty," I hear you say. No, my friend, I have not. I am not the man to yield rashly to temptations of that sort, even if they were forced upon me, least of all to seek them of my own accord; but in the present instance I had no choice. My partaking of garlic sausage after dinner was a sacrifice to the code of good manners that prevails here, and a conversion to the intense fondness for that somewhat too redolent edible of the majority of my comrades.

I'll tell you how it happened. Last night was my first, and, I suppose, my only, "at home," for I shall probably not be called upon to entertain my comrades at supper again. The affair, thanks to the judicious counsels of my brigadier, went off with great *éclat*. In other words, I paid my footing. I need scarcely tell you that it was the social event of the week. When a young man is known to be able to stump up 1,500 fr. for the privilege of having to learn in a twelvemonth what others are supposed to cram into their noddles in three years and three quarters, that young man cannot simply take his *chambrée* to the canteen and stand glasses round. The festivities with which he celebrates his installation must mark an epoch, and are generally left to the last of the series. As I happened to be the only "one year's volunteer" in my *peloton* this year, the thing was looked forward to with more than usual interest. I take not the slightest credit for its unquestionable success, because, as I have already told you, it was the outcome of various consultations with my afore-mentioned brigadier. He undertook to compose the *menu*. And if the whole scene could be faithfully reproduced on one of our Parisian stages, it would make the whole town run to see it. For you can form no idea of the aspect of that room, lighted up by three tallow candles, stuck in their own gutterings, and with its full complement of inmates, thirty dragoons seated before 23 francs 75 centimes of porcine dainties, all flavoured with garlic and flanked by two enormous stone pitchers (our toilet pitchers), filled to the brim with ordinary, but absolutely astonishing wine—essentially astonishing to those who would scruple to wet their lips with anything but Corton, Léoville, or Château Larose.

Of course I had suggested a few bottles of a superior quality, but the organizer of the *symposium* flatly pooh-poohed the notion, pointing out to me that quantity would be a more flattering tribute to my comrades well-known tastes than quality; and not forgetting to remind me, with a kind of cynicism that would have done credit to an assiduous frequenter of the fourth-rate restaurants in the Palais Royal, that the quality would be the same in any case. So I assented; merely suggesting in a mild, off-hand way, that the pitchers might be rinsed previous to their being filled, to do which, however, he completely forgot. What a blessing that dirt is more picturesque than cleanliness; that Murillo's "Beggar Boys" stir our artistic instincts, while a faithful presentment of a lot of Sunday-school children. their spotless mob-caps and neat blue gowns, leav almost indifferent. Even so. The tremendous vessels, their gory liquor trickling down their and cracked sides, looked truly grand standing did on the massive, rough-hewn board, stained antique dolmen, still smoking with the sacrific on its grimy, sticky, and sacerdotal surface tha tions of dragoons have polished their leathers, their swords and helmets, blackened their bo

their carabines; it is from their grimy surface that generations of dragoons have eaten and drank; they, the boards, have consequently preserved the traces of their multitudinous uses, they have preserved all their scars, all their odours, save that of the recuperating soft-soap.

Don't turn up your nose, friend, for if, like me, you were here, you would be compelled to admit that this absolute lack of comfort, this unfathomable and ingrained disregard of cleanliness, has something virile about it; something martial, which may surprise, but does not shock. Nevertheless, I have been asking myself the question whether men would be worse



THE DISMISSAL WITH IGNOMINY.

soldiers for being located in a well scoured and scrubbed room, taut and trim, as is, for instance, the between-decks of a man-of-war? Would they be less disposed to get on horseback if they had slept quietly and *alone* in their beds, instead of having to wage incessant war against invisible and nocturnal cohorts that take the field at the first wafts of the summer breeze, "and cease not to conquer" until the russet leaves have done careering madly in the autumn gusts. While on the subject, may I trouble you to get me a few more packets of Keating's Powder. It seems unpatriotic to resort, like the *emigrés*, to the foreigner to get possession of one's own, but the preparations sold here are rather an exertant than a palliative to the evil. I was talking to someone the other day about the numberless disturbers of my night's rest. "In barracks, my friend," came the answer, "cleanliness is simply synonymous with the shifting of the dirt from one place to another." I am inclined to think there is a good deal of truth in the remark.

According to the regulations, the military stores furnish each soldier with an iron camp-bedstead, or with a wooden framework supported by tressels; with a rye-straw mattress, and a woollen one atop of that. The former has to be renewed every twelvemonth; beaten, and examined every six. The latter should be looked to more frequently. These regulations are systematically neglected. The bolsters are absolutely filthy. As for the bed-covering the soldier is entitled to, it consists in a pair of sheets (to be changed every month during the winter, every twenty days during the summer), a pair of woollen blankets, one of which is taken away at the beginning of April and returned to him at the beginning of October. With the exception of the removal of that one piece of covering, which is strictly performed, the rest goes hang. The colour of the sheets matches that of the "Russian socks" worn by the peasant soldier, or by those who are too poor to buy the "stocking stunted in its growth," as the poet calls the ordinary article. The "Russian sock" is nothing more than a piece of cotton or linen rag, also supposed to be renewed frequently; but renewed only in the sense of the man with the paper collar, who merely turned it inside out.

But even if all these regulations were strictly carried out, if inspection succeeded inspection, they would not

more or less unkempt and tatterdemalion comrades are performing all sorts of vagaries around me, some brandishing their pocket-knives before plunging them into the enormous loaves, others setting their teeth firmly into the hunks of garlic sausage, others still dipping their noses into their jugs, their elbows uplifted, and pouring the liquor down their throats with a "glucking" noise, like that of a barrel that 's being filled—while they are doing all this I ask myself whether I have not suddenly been carried off to some Vendean donjon, or to the sombre and picturesque den of a band of mercenaries, such as Callot drew and Rembrandt painted. Make fun of me as long as you like, but you should have seen all this steel gleaming in the shade, this confusion of swords, spurred boots, helmets with their manes, uniforms thrown hither and thither, forgotten saddles and bridles—you should have seen those weird cavern-like vistas illumined every now and then by the flicker of the smoky candles, those rubicund faces, those large grimy hands rummaging among the eatables, spread on the boards mostly, and ranged pell-mell around the centre dish, a gigantic pewter-platter borrowed from the canteen—you should have seen these incessantly masticating jaws, this rusty and battered store, the muddy brick floor—you should have heard the wonderful din, silenced now and then by a solitary outburst of Homeric laughter, the clanking of the clogs, the rattle of the helmets, dancing, as it were, on their ricketty shelves.

And, amidst it all, our Brigadier, his forage-jacket buttoned up, his hands in his pockets, patronizingly surveying our mirth, and alternately puffing at or chewing his halfpenny cigar, like Jupiter wafting a thundercloud. He has promised to drain the friendly cup when the hour strikes.

Suddenly a song is asked for. It is a blue (an ordinary recruit) who volunteers to open the concert. He smells horribly of the stable. I do not condemn that smell, I only note it, for I like his big goggle-eyes, like those of a child looking out with wonderment upon the world; I like his bull neck, his sweet melancholy smile. While the comrades are pulling and pushing him about, he slowly takes off his clogs and heavily steps on the table. "*Nom de nom*," yells the Brigadier, "not on the table. Stand on the seat." And, turning to me with a shrug of the shoulders, he adds: "They don't know their manners; one would think they had never been in decent society." The performance of the "blue" is not a success. He is summarily hauled down from his perch, and his successor also fails to elicit applause. He is a Parisian from one of the faubourgs, and he intones the "Marseillaise." "The day of glory that is to arrive," and which, like Mme. Benoiton, in Sardou's play, never does arrive, leaves my comrades perfectly cold. The insurrectionary tendency of Rouget de Lisle's hymn fails to impress itself on their minds. Besides, they do not want the trouble of thinking out that revolutionary *morale*. That is not their way of diverting themselves when they get drunk at the tavern. While the second performer is on his legs, I notice our Brigadier march up and down, evidently with suppressed excitement. He is as red as a boiled lobster. Suddenly he stops, and throws away his cigar. "Hallo, you, you sing like a currycomb; I have said the word, like a currycomb. Let 's hear the volunteer."

The "volunteer" means me. I spare you the particulars of my success, for two reasons. First, because I do not wish to be suspected of vanity, and because I am not certain whether it was myself or the song that carried their suffrages. At any rate, they applauded furiously, and took up the chorus, "Vive la France." Secondly, I am writing this in a canteen on the corner of the table, and have been dipping my pen several times in the mustard instead of the ink. And the plate which served me as a blotting-pad has just been snatched away.

Your friend,

PAUL.

(*To be continued.*)

THE ITALIANS ON THE RED SEA.

By CARL VON AUSLAND.

WHEN the construction of the Suez Canal changed the route to India, and transformed the Red Sea from a watery desert into a commercial highway of the first importance, the principal naval Powers of Europe turned their attention to its coasts. England occupied Perim, thus commanding the southern outlet of the Red Sea; France shortly afterwards took possession of Sekeira; Austria sent emissaries to select a site for a commercial and military station; and Italy bought Assab, with the object of making it a base from which Italian commerce might be pushed among the tribes of the interior, and eventually as a commercial centre for the rich regions of Aussa, the country of the Gallas, the Arabian coast, and the stations on the route to India.

The undertaking was, at first, a private one. At the close of the year 1870, the Rubattino Company rented, for a term of ten years, the islands of Darmakieh, in the roads of Bouhia; and on the expiration of the lease purchased the freehold. In March 1880 the Company acquired, by another contract, all the islands of the Bay of Assab, between Cape Santour on the south and Cape Louma on the north, together with the coast-line to a depth varying between 3.7 and 11.1 kilometres.

A short time afterwards, the Italian Government sent the despatch-vessel *Esploratore* into Assab waters, with orders to report upon the hydrographical conditions of the district. It was found that both Assab and Bouhia were extremely accessible, and possessed good anchorage. The commandant of Amezega was then instructed to represent the Italian Government in any negotiations with the Sultans of Danakil, to whom the coast-line between Assab and Edd belonged. In May following the island of Sannabor was purchased from the Sultan Ibrahim, and the proprietary rights of the Rubattino Company were transferred to the Italian Government. This step was formally sanctioned by Parliament in June 1882, when Assab became an Italian colony, and the kingdom started on a career of territorial aggrandizement, the only result of which has hitherto been a large expenditure of money and the loss of 500 lives at Saati.

The first step of the Government on acquiring Assab as a national possession, was to declare, with the assent of England, a protectorate over the territory of Beilul to the north and Raheita to the south. Commercial and scientific expeditions had already been made into the interior, with the object of exploring the country, and, at the same time, estimating to what extent the inland tribes might be counted upon to support the new colony. In 1881 the Giuletti-Biglieri expedition penetrated about 60 miles in the direction of the Lake Tsana, but it never returned. In the same year Signor Bianchi explored the Gallas country and part of Abyssinia. Two years later the same traveller was a member of an official mission from the Italian Government to the King of Abyssinia. The negotiations were considered at the time wholly successful; and on the return of the expedition Signor Bianchi attempted to pursue his explorations with the object of finding a caravan route by which the detour through Choa and Aussa into Abyssinia might be avoided. A first attempt in 1884 failed. In the second the Italian traveller and his companions were massacred by bands of nomad Danakils. The Italian Chamber, moved by a strong expression of public opinion, instantly sanctioned the despatch of a detachment of troops to the colony.

The coincidence of the siege of Khartoum and the death of Bianchi led to an active interchange of correspondence between the English and Italian Governments, in which common action was projected. It was thought that an Italian column starting from Massowah could contribute to the relief of Khartoum and Kassala, and at the same time punish the murderers of the Italian scientific expeditions, through whose country the line of march would lie. The hand of the Italian Government was, moreover, strengthened by the agitation in favour of colonial enterprise, which, at that time, affected Italy almost as strongly as Germany. Orders were issued on 3rd January 1885 for the formation of an expeditionary force; and on the 14th of the same month, Colonel Saletta embarked at Naples in command of 800 men for Assab.

Except in regard to the advantage of its anchorage, the littoral to the north and south of Assab presents none of the attractions for which colonists usually look. A long stretch of arid sand, with no watercourse to relieve its parched-up appearance, extends from Beilul to Raheita. The only vegetation visible is at the delta of the Mara, a torrent during the rainy season, a dry bed throughout the rest of the year. D
water is obtained from wells, which are s
numerous, especially around Beilul. The It
sessions at Assab cover an area of 620 sq
metres, with a population of about 1,
population of the districts under Italian pr
somewhat over 2,000. The Danakils, by

colony is surrounded, are an essentially warlike race, and among the most active slave-traders of the Soudan. If these troublesome neighbours can by any means be repressed, Assab is excellently situated to tap the trade of Southern Abyssinia, and the fertile regions of Aussa, Choa, and Gallas.

While the Italian expedition was still at sea, Khartoum fell, and with it the idea of an Anglo-Italian alliance against the Mahdi. On 5th February the expedition intended for Assab landed at Massowah, about 300 miles to the north. After a brief negotiation with the Egyptian authorities, and despite their protests, the Italian flag was hoisted on the fort, the governor's residence was occupied, and an Italian garrison took possession of Gherrar, Monkullo, and Otumlo. Thus, within a few hours and without a single blow, the Egyptian garrison was replaced by Italian troops.

Massowah, according to tradition an ancient Persian colony, was conquered by the Turks in 1557. It passed eventually under Egyptian rule, and was included in the general government of the Soudan. King John of Abyssinia had been negotiating, since 1884, with the Egyptian Government for the evacuation of Massowah, or, at least, for a pledge that the island should not be allowed to fall into the hands of any other Power. The Negus was profoundly irritated at the occupation of the town by the Italians, but, fearing the result of a long and costly war, and, perhaps, mindful of the fate of his predecessor, he consented to abandon Massowah to the new-comers, on the condition that they should not push their conquests into the interior. We shall see how the Italians complied with these stipulations.

The town of Massowah is built on the largest of four coral islands situated to the north of Arkiko Bay. The island is 1 kilometre in length, by 300 metres in breadth, and is connected, by a dyke 500 m. in length, with Taulud, another island of the group, which, in its turn, is joined to the mainland by a chaussée of 1,200 metres. The water supply of Massowah, drawn from the village of Monkullo, 8 kilometres distant, is obtained through an aqueduct passing over these embankments. The population of the town, according to a census taken in September 1885, was about 5,000, excluding the garrison. Among the inhabitants were 45 Italians, 51 Greeks, 11 Frenchmen, 2 Maltese, 1 German, 92 East Indians, 235 Abyssinians, and 275 Ethiopians. There were 7 mosques, a Swedish mission, a Catholic Church, and 26 commercial houses—6 Italian, 4 Greek, 8 Arab, 1 French, and 7 East Indian.

The defence of Massowah consists more in the shallows and reefs by which it is surrounded than in the small forts of Ras Moudour, Gherrar, and Taulud, or the works intended to protect the wells of Otumlo and Monkullo. Gherrar is most strongly protected. A fort and several magazines were constructed there by the Egyptians, but the island is wholly without water. The port between Gherrar and Massowah affords an exceedingly good and sheltered anchorage. All the forts are armed with guns in good condition. Immediately opposite Massowah is the Dahalak Archipelago, with about 2,000 inhabitants, principally engaged in pearl-diving and tortoise-catching. The value of the pearls obtained annually is about £40,000. Seven miles to the south of Massowah lies Arkiko, a large straggling town of about the same number of inhabitants, protected by a small fort.

The first act of the Italians on taking possession of Massowah was to land an ample supply of war muni-



Colonel De Christoforis.

tions, to construct magazines for their reception, and to build barracks for the troops. A telegraph line was then laid between head-quarters at Massowah and the forts of Taulud, Otumlo, and Monkullo.

A second detachment of troops, under Lieut.-Colonel Leitenitz, arrived, on the 24th of February, with a supply of water, coal, and 68 horses and mules. In the meantime, a company of infantry had landed at Assab, and occupied Beilul. On 7th March a third expedition, of about 1,600 men, was sent out under the command of General Ricci, who was ordered to inspect the posts already occupied, and report upon the probable future prospects of the colony. This last reinforcement raised the number of Italian troops on the Red Sea to 3,200—2,850 in Massowah, and 350 in Assab and Beilul.

On 17th March, General Ricotti, in reply to some

questions in the Chamber, stated that the 2,500 men then in Massowah sufficed both for the occupation of the town and for reconnaissances into the interior, and that it would be possible to send out 15,000 or 20,000 men without affecting the scheme of mobilization for the Italian army. He added, however, somewhat significantly, that the time had *not yet* come for expeditions into the interior, and that there was, therefore, no occasion to create a colonial army.

In April 1885, a detachment of Italian troops occupied Arafali, a healthy station on Annesley Bay, 35 miles to the south of Massowah. The small Egyptian garrison at Arafali was taken back to Suez by the steamer which had brought their successors. Arkiko was occupied in the same way by a company of marines. In June the garrison of Massowah was reinforced by a half-troop of cavalry and 50 engineers; and in September, General Gené was appointed commander-in-chief of the African army.

From this time, the districts affected by the occupation were administered as an Italian colony. The Egyptian flag, which, until then, had floated side by side with that of Italy, was lowered and sent back to Egypt with the detachment of Khedivial troops embarked in December 1885. The Italian authorities endeavoured, by every means in their power, to conciliate the tribes of the interior. Ras-Alula called in Italian doctors to attend the Abyssinians wounded at Kufit, but he sent them back again when he learned that his enemy, the chief of the Habab tribe, had been amicably received at Massowah.

Both at Assab and Massowah the works were, in the meantime, pushed on with restless activity. The rapid increase of the garrison at the latter place rendered necessary a very much larger supply of water than that furnished by the aqueduct, and wells were sunk at various places with satisfactory results.

The year 1886 passed without any incident of importance, except the massacre of Count Porro, and a number of raids by robber-chiefs to within a few miles of Massowah.

In January last, when the disaster of Dogali occurred, the army of occupation consisted of 2,700 men at Massowah and 360 at Assab. To the Massowah troops must be added 900 or 1,000 Bashi-Bazouks, who passed, on the occupation of the town, from the Egyptian into the Italian service. The organization of these troops is the same as it was during the Egyptian occupation—24 men form a boulsk, commanded by a bouluk-bashi; 4 bouluks form a tactical unit corresponding to the company, and commanded by a jus-bashi. Two, or more, hundreds are commanded by a bim-bashi; a thousand by a sandják. The Bashi-Bazouks were distributed among the advanced posts, like Emberemi, Macalileh, Dahlak, Saati, Otumlo, Monkullo, Arkiko, and Arafali.

The troops which have been successively sent to Massowah and Assab have been selected in such a manner that their absence from Italy should not affect the general plan of mobilization, nor weaken the frontier corps. The battalion of Bersaglieri present when the disaster occurred was, for instance, composed of 4 companies drawn by lot from the 1st, 4th, 7th, and 8th Regiments; the 3 battalions of the Line were made up in a similar manner of companies drawn from 12 regiments. Each company, however, leaving with an effective of 150, was obliged to draw upon the other companies of the regiment for a certain number of trained and healthy men, thus considerably weakening the cadres by depriving the regiment of its best men



Major Olivetti.

when all were needed for training the recruits. No soldier is required to serve more than one year in Africa; and by a law passed 18th April 1886, service on that station counts double in the case of pension. Furthermore, diseases contracted in Africa are regarded, so far as retiring allowances are concerned, as wounds received on active service.

An important step was taken in June 1886, when a department was founded at Naples for the transaction of all European business connected with the administration of the colony. The department is under the immediate command of the Minister of War, and has the following staff:—

1 colonel of infantry, as chief.
1 accountant officer.
3 captains, 1 of infantry and 2 of the paymaster staff.

10 clerks.
3 non-commissioned officers.
4 corporals.
22 privates.

All officers, employés, and privates; all horses, mules, or other animals, and all stores intended for the army of occupation, are taken in hand by the department on their arrival in Naples, and despatched without loss of time to Africa; and the same system is pursued with those returning.

In consequence of the constant raids of the inland tribes, General Gené at the close of last year decided to occupy and fortify the station of Vua or Ouia, about twenty-four miles to the south of Massowah. A company of 100 Bashi-Bazouks was, therefore, despatched to that place in October. This measure was naturally resented by the Negus, who had assented to the Italian occupation only on the condition that no troops should be sent into the interior. At the close of December he sent emissaries to Vua with orders to reconnoitre the Italian post; and, at the same time, a rumour became current that Ras-Alula intended to make a raid upon the confines of the Italian possessions. The Commander-in-Chief instantly reinforced the small garrison of Vua by 50 irregulars, and sent two and one-half companies and a mountain section to Arkiko, which was already held by a small force.

On the 10th of January a letter arrived at Massowah from Ras-Alula, in which the latter protested against the occupation of Vua; and on the 14th, the Lieutenant of the Negus called upon the Italian General, in peremptory terms, to evacuate both that place and Zula, which had also been occupied. At the same time, Count Palimbeni, Major Piano, and Lieutenant Savoiraux, who were engaged in exploring the Goggiam country, and who had been at first received with great courtesy, were made prisoners and sent in chains to Ghinda, thirty-five miles from Massowah. General Gené was then informed that any resistance on the part of the Italians would be visited upon the hostages.

The Italian detachment occupying Arafali was immediately ordered to move on Saati, while a small reinforcement of 2 companies of regulars, 50 Bashi-Bazouks, and 4 guns was sent to reinforce Vua. On the 18th, General Gené sent Lieut.-Colonel de Cristoforis, with 3 companies and a section of artillery, to Monkullo, and distributed 560 rifles among the natives who wished to take part in the defence of the threatened territory. Three vessels were also directed to cruise along the coasts for securing the safety of Emberemi, Arafali, and Arkiko.

On the 29th of January, General Gené sent home a despatch, from which the following is an extract:—"On the 22nd inst. I was informed that Ras-Alula was advancing, with all his force, on the south of Saati. At the same time an exiled Abyssinian chief joined us with 80 men. On the 24th, Ras-Alula was said to have arrived within five kilometres of Saati, and there to have pitched his camp. On the 25th, he attacked our position at Saati, but without effect, as the report of Major Boretti, commanding the troops there, will show." Early on the morning of the 25th, the Italians, it appears from the report referred to, made a reconnaissance towards the enemy's camp, but were not able to approach



ITALIAN INFANTRY FOR RED SEA SERVICE.

within less than a kilometre, in consequence of the heavy fire opened upon them. Towards the middle of the day the heights to the rear of the Italian position were covered with troops, who evidently intended to surround the weak garrison. An artillery-fire was at once opened upon the enemy, who now appeared in every direction, driving back the Italian skirmishers, and killing their commander, Lieutenant Cuomo. Aided by the nature of the ground, the Abyssinians approached within 300 metres of the Italian position, displaying

the greatest activity and intrepidity. After a three hours' fight, however, they took to flight, but no active pursuit seems to have been attempted. "The enemy were armed," says Major Boretti, "with Remingtons and Martini-Henrys, and abundantly supplied with ammunition. As a rule, they fired too high; but they possessed a number of good marksmen. The officers here estimate their strength at from 5,000 to 6,000. It is impossible to estimate their losses, but they must have been considerable, judging by the number of dead and wounded they carried away during the action, and by the pools of blood on the ground which they occupied. Our losses were four wounded, of whom two have since died. The Bashi-Bazouks had three killed, one wounded, and five missing. We fired 5,600 cartridges, not including those of the irregulars, besides 37 shell, 17 shrapnel, and 4 case. . . . The Bashi-Bazouks might render better service if they fought with more order and calmness, and were commanded by more capable and energetic officers."

Major Boretti, continues General Gené's report, immediately informed the commandant at Monkullo of the result of the fight, requesting, at the same time, provisions, ammunition, and reinforcements. The latter was not able to reply with this request until 5 o'clock on the morning of the 26th, in consequence of a difficulty in procuring camels for transport. He then sent, however, three of the five companies at Monkullo, together with detachments from the 6th and 7th regiments of infantry, and a machine-gun section, under the command of Lieut.-Colonel de Cristoforis, to the relief of the threatened station. At about 11 o'clock on the same morning, the commandant at Monkullo received two letters from Lieut.-Colonel de Cristoforis; one, dated 8.30 A.M, stating that the column had arrived at Dogali (a village nearly half-way between Monkullo and Saati), that firing had commenced, that the enemy was in force, and that the machine-guns would not work; the other, dated 9.30 A.M., and addressed from the same place, requested reinforcement both in guns and men, without which the advance could not possibly be continued. Only two companies now remained in Monkullo, and one of these with a machine-gun, under Captain Tanturi, left at 11 o'clock. At the same time two detachments of infantry were sent from Massowah to occupy Monkullo, and shortly afterwards these were followed by a 7-cm. naval-gun, served by sailors, and a half company of Bersaglieri drawn from the fort of Abd-el-Kader.

The report sent from Monkullo by Captain Tanturi to General Gené, dated 27th January, contains the following passages:—

"Yesterday, at 11.30 A.M., acting on the order of Lieut.-Colonel de Cristoforis, received at 11.7 A.M., I left for Dogali with my company and a machine-gun. On approaching Achet we met one of our men, wounded, who told me that the Abyssinians had attacked the column and retired immediately. After passing the tombs of Dogali, I saw a machine-gun caisson open, without powder or cartridges; and at the same time the Bashi-Bazouks, who had been sent in advance, signalled the presence of the enemy. The interpreter questioned two natives, who stated that all our troops had been massacred, and that the Abyssinians, in great strength,



Bashi-Bazouk. Marching Dress.

were still in position. This seemed to me an exaggeration, and I continued my march, the interpreter taking to flight. When we arrived at a point where the valley widens, my scouts brought word that the Abyssinians were advancing. I formed square, placed the machine-gun in position, and sent three men in the direction from which the enemy was reported to be coming. They returned with the information that the only Abyssinians they could see were three or four horsemen fleeing towards Saati. Shortly afterwards we captured a shepherd, who pointed out to us the position in

which our troops had been attacked. On a hillock, the first position occupied by our troops, we met a wounded soldier who stated that all his comrades lay dead at a short distance from us. I was still incredulous, and



Bashi-Bazouk. Full Dress.

with my company approached the spot indicated. On arriving behind the crest, I understood for the first time the immensity of the catastrophe; all our men had fallen in order, and as if in line. We searched for wounded, but all the officers and almost all the men were dead; the few who were wounded were carried back to the valley. In this hecatomb there were but one or two blacks. I turned towards the left of the position, and found there also a number of bodies. Suddenly the shepherd, whom I had left on the look-out with four of our men, cried out that he saw a large number of horsemen in the direction of Saati. As we could neither advance nor defend ourselves, and fearing that we might fall into an ambush during the night, I ordered a retreat. . . . From what I saw and learned from the wounded, I believe I should not be much out in estimating the number of Abyssinians at 20,000, I re-entered Monkullo at 6 o'clock in the evening, in perfect order."

The losses of the Italians were 23 officers and 407 men killed, 1 officer and 90 men wounded.

The news of the disaster was received with great excitement in Italy. Five million lire were immediately voted by the Chamber; reinforcements of nearly 2,000 men, with 4,000 rifles and 32 guns, were sent out, under Major Olivetti and Lieut.-Colonel de Vigliana, to Massowah, with a promise of more to follow, and the construction of a submarine cable between Assab, Massowah, and Italy, was decided upon.

Ras-Alula failed to follow up his advantage. Instead of attacking Massowah, he retired to Asmara, 20 miles to the south-west of Saati, whence he sent letters of an obviously pacific character to Major-General Gené. The Negus wrote on the 26th January: "You have taken Vua, and have come to construct a fort at Saati. What is your object? Is not this country mine? Evacuate my country if you have come with the object of building fortresses." Ras-Alula's letter was as follows: "All that has happened must be attributed to your ruse. Let us now be friends as in the past. Remain in your boundaries. All the country from Massowah hither belongs to the Negus. I have sent your brother to speak to you."

The letter was brought by Major Piano, one of the hostages. On the 20th February, Count Salimbeni was sent with another letter of similar import.

From these communications it appears that the Abyssinians are extremely unwilling to renew the conflict. The decision of peace or war now rests with Italy.

Carl von Ausland.

squirrels with grey bodies, rufous heads and tails, inquisitive habits, and most independent characters, and are as sacred from harm to the American backwoodsman as the robin is to us.

We had a team of six horses in pairs (the centre pair called "swings," and always the worst), and the steep hills often tried their powers severely, especially when the road turned suddenly at a sharp, steep angle, and threw the four leading horses out of draught, so that all the work fell on the wheelers.

At length we reached Tahoe City, which consisted of a small inn, six cottages, and a rickety pier, all built of wood. A western city may be defined as "two or more shanties." If Brown builds a hut, he calls it simply "Brown's," but if he adds a barn or a cowshed, or if Jones builds another hut alongside, the settlement becomes "Brown's City" at one leap.

We went on board the steam-launch which lay at the pier-head awaiting the arrival of the coach, and proceeded twenty-three miles up the lake to Tallack, passing two or three tiny settlements (infant "cities!") nestling in the pine-woods on the shore. The water was transparently clear, and of a rich deep blue, the high hills covered with pines, and the distant peaks of the Sierras tipped with snow. The pretty, cool inn at Tallack was reached at noon, and we were soon sitting under the fir-trees, or lounging in hammocks by the lake-side, enjoying the soft, balmy breeze. This lake is thirty-five miles long and from ten to fifteen wide; its surface is 6,218 feet above the sea, and its clear waters are said to reach to a depth of 600 fathoms. "Emerald Bay" is one of the prettiest nooks of the lake, reminding one of an enlarged Loch Katrine; Ellen's Isle represented by a rocky islet on which stand a small hut and a cross marking a grave. It is said that a misanthropic Englishman—Captain Richard Barton—settled on this island, living in the hut, and intending his bones to lie in the tomb, but fate decided against the latter part of his plan, for he was drowned in the lake and his body was never recovered.



TALLACK, LAKE TAHOE.

There are many pretty views and pleasant excursions in the neighbourhood of Tallack, specially towards the mountains at whose feet nestles Fallen Leaf Lake; the steam-launches plying on Tahoe brought a constant succession of visitors, and the inn, though primitive, was not uncomfortable. One day came three Indian women, offering "thimble-berries" (*Anglicé*, raspberries) for sale. One of these women carried a papoose, or baby, on her back—the little monkey was swaddled up in parti-coloured rags, and firmly strapped on to a frame of basket-work which formed a hood over its head—all had swarthy complexions, and the women's hair was cut square or "banged" across the forehead.

We left this quiet retreat with regret after a few days'

In December 1865, while her husband was serving in the U.S. Cavalry against the "Rebs," he and four others were sent over the plains of Minnesota with important despatches. While crossing these vast desolate prairies they were caught in a "blizzard" or icy current of wind, as much dreaded there as the simoom in the Great Sahara. For days they wandered on, bewildered by the whirling snow, blinded by the stinging sleet, until at length—horses and men alike worn out with constant movement and want of that sleep which weighed on them so heavily, but which was the well-known prelude to certain death—they could do no more, wearied nature dulled even the instinct of self-preservation, and they lay down together to rest for ever. A party of Indians found the stiffened bodies of men and horses covered with snow, and as one of the former still showed faint signs of life, they brought it into the nearest outpost, where they arrived seven days after the despatch-party had left, for this was the very point from which the unfortunate men had started. The news was sent to the wife of the rescued man, to whom he had been only a year married, and she immediately set out in a waggon, drove a hundred miles through deep snow-drifts in intense cold, reached the outpost, and, after seven months of unceasing care and anxiety, succeeded in nursing the poor cripple back to life and health. Tears stood in her eyes as she told the story, winding up with saying, "I had a terrible time with him!"—words few and simple, but containing volumes of expression.

At length we reached Promontory, and found, to our great relief, that we had done with the depressing desert. This is the point at which the two engineering parties laying down the line finally met; one set had started from Reno, and the other from Ogden, and they joined here on May 10th, 1869, completing with a silver bar the last link of the iron chain which unites East and West, and binds the Atlantic to the Pacific.

And now a great sheet of water came in sight on our right, strange, unnatural water, not shimmering in the sun as the breeze played over its wide bosom, not



GREAT SALT LAKE.

sparkling, bright, and dazzling, but lying smooth, motionless, and heavy, with a sullen gleam like a sea of molten lead; no reflections from the surrounding hills varied its uniform tint, nor faintest ripple disturbed its dead stillness; grey, dull, and silent lay the Great Salt Lake, the Dead Sea of the Western Continent.

The next station was Ogden, and we knew that we were now in the land of the strange fanatics who have dubbed themselves "Latter Day Saints," and claim all the high privileges of the Chosen People. Here we changed to the narrow gauge of the Denver and Rio Grande Railroad, and pushed on for Salt Lake City.

Wide, well-tilled fields stretched on both sides of the line, comfortable homesteads nestled under wide-spreading trees, cattle stood knee deep in the lush pastures, and all combined to emphasize the contrast with the dreary desert we had left; but what most struck our English eyes was the multitude of sunflowers which covered every uncultivated spot with a sheet of gold. They grow as weeds in this part of the continent, and accompanied us as far as the banks of the Missouri.

But we were not allowed much time to admire the sunflowers, for soon a mass of trees appeared in the distance, backed by the serrated ridge of the Wahsatch Hills, and immediately afterwards the great oval dome of the Tabernacle and the unfinished towers of the new Temple rose above the foliage, and announced that we had reached Salt Lake City, the "Zion" of Mormonism.

Shortly after mid-day we drove up to the Walker House hotel, and, after a rapid toilet and a still more hasty meal, hurried off to attend the 2 o'clock Sunday service—the only public worship in the week.

The great double roof of the Tabernacle, shaped like a dish-cover, was supported on columns about eighteen feet high, forming a verandah round the many-doored main building. The interior, which we entered without demur, had its floor occupied by long pews, all facing an immense organ at the west end, which bore the legends, "In God we put our trust," "Under the everlasting covenant God must and shall be glorified"; also a painting representing Joseph Smith with the book of Mormon.

In front of the organ, and facing the congregation, were three graduated rows of seats covered with crimson velvet, each of those in front lower than the one behind it. The highest row was set apart for the president and councillors, the next for the twelve apostles, and the lowest for the bishops. The choir was on each side of the organ, about fifty men on the north and thirty women on the south. In the centre of the crimson seats stood a raised desk for the preacher, bearing copies of the Bible and the book of Mormon, and on either side was a stone lion couchant. In front, a long plain table, covered with a white cloth, bore six large tankards, four goblets, and twelve smaller cups with double handles, the last holding about a quart.

A gallery ran round the building, except at the west end; both it and the floor of the Tabernacle were well filled with a quiet, orderly congregation which must have numbered quite 8,000, as the building holds seats for 12,000, and fully two-thirds were occupied.

We were civilly shown into a pew about a quarter of the way down the vast hall, or rather up it, for the floor slopes upwards from the west to the east end, so that all the seated congregation can see the preacher over the heads of those in front of them.

Two square holes or ventilators opened in the roof, which was festooned with garlands of evergreens to check reverberation; and from the centre hung a trophy of evergreens decked with stars and stripes in honour of the Grand Army.

The service had already begun when we entered. A grey-bearded Englishman named Stainer occupied the desk; his finely-moulded head, good accent, and impressive delivery combined to form a marked contrast to the nervous manner and common appearance of Bishop Whitney, who succeeded him. Both discourses were profusely interlarded with quotations from the two volumes lying on the desk. The first speaker chiefly inculcated the necessity of prayer and self-study:—"Look into your own evil doings, especially breaches of the Sabbath; pray that angels may visit the Latter Day Saints, and that God may vouchsafe his promised advent; pray earnestly against the evil spirits who attempt to deceive the elect." He concluded with the following peroration:—"My testimony is that Joseph Smith, Brigham Young, and the leaders of the Latter Day Saints in line of succession from them, knew the secrets by which the earth was made. God will remove the clouds of oppression; be not downcast, His ears are open to your petitions. Your obstacles are pride, covetousness, and self-will; but overcome these and the heavens will be big with blessings."

Bishop Whitney said: "Who are the Latter Day Saints? Descendants of the patriarch who received the promise, 'in thee and in thy seed shall all the nations of the earth be blessed.' But you are going into bondage, you are scattered like Israel; like Jeremiah, I lament over you. Remember that Jesus said to the faulty apostles, 'Ye are the salt of the earth; but if the salt has lost his savour, wherewith shall it be salted?' When you doubt Taylor as you doubted Joseph Smith, because his promises were not fulfilled, you let deceivers mislead you. The day is coming when we shall be called holy, even as He is holy. Our church may become smaller, but it will be as gold refined; and my prayer for you, men and women, for the Gentiles and for the whole world, is that all may be saved in these latter days. Amen."

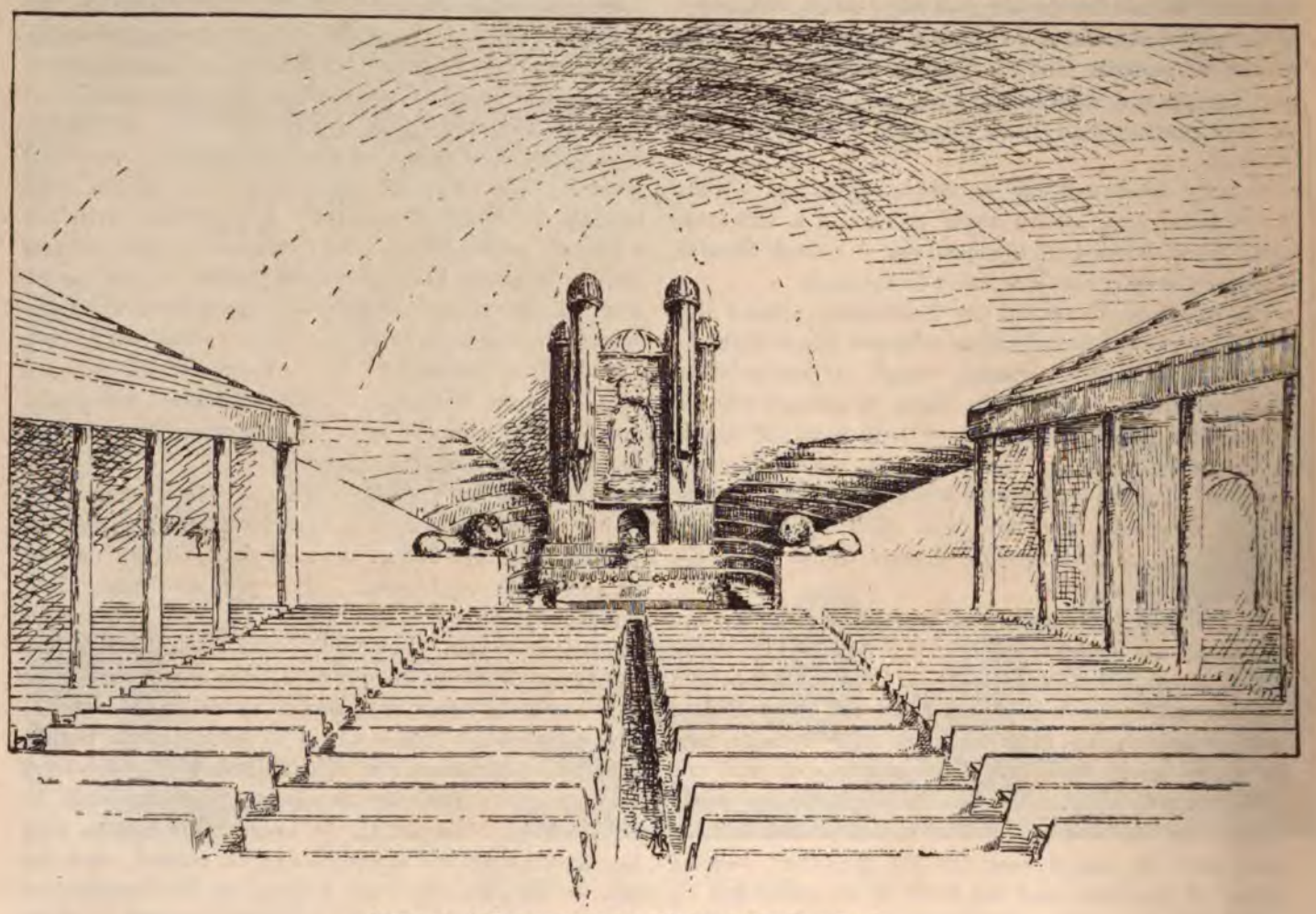
Both preachers warned the people of coming tro
but said that this generation should live to see t
day of deliverance and of triumph, argued that
the Divine was still living, claimed the gift o
and said they had frequent intercourse
Mr. Whitney also quoted a revelation m
Davies on October 13th, 1884.

During the addresses the Sacrament wa
by handing round the smaller silver
water from the six large tankards on t
of the crimson seats. Evidently we
Gentiles even among that immense co

cups were more than once handed past us from either side.

Leaving the Tabernacle, much interested though scarcely edified by what we had seen and heard, we visited the new Temple, a very solid building of grey granite, quarried on the Wahsatch range. The walls, of square-hewn granite blocks, are nine feet thick at the base, and seven where they will join the roof when it is added. The massive buttresses bear the four quarters of the moon in bas-relief, over the door are joined hands, above these an eye, and over this again a marble tablet inscribed with the date on which the building was commenced—April 12, 1853—and with a blank space below for the date of its completion. This building is 200 feet in length, 100 in breadth, and the same in height, the towers will be 200 feet high. It is intended to replace the "Endowment House," a mud or *adobé* building, where the mysterious ceremonies of baptism or initiation and marriage are now performed.

Our next point was Brigham Young's tomb. To reach this we had to pass the Lion Mansion where the prophet lived, a long low house, or rather terrace, with ten gables and five doors facing the street; a lion couchant on each side of the entrance gives the name to the edifice. Next door to this is the Beehive Mansion, in which Young kept his harem, except the first wife, Amelia, who lived by herself on the opposite side of the road in a very fine house of grey stone, well built, and surrounded by a pretty garden, and called indifferently "The Amelia House," and "Gardo House"; this building is now occupied by the President, John Taylor, or rather by his family, for he himself is in hiding from the police of the United States, by whom he is "wanted" on the charge of polygamy.



THE MORMON TABERNACLE.

At about one-third of a mile from the Temple we came to a small, well-kept, grassy enclosure by the roadside, which looked like a lawn-tennis ground until the eye fell on the four or five tombstones which lie at the southern end. That of Brigham Young is in the south-east corner, and is surrounded by a plain iron railing; no inscription marks his resting-place, and this is often quoted as a proof that he is not really dead. The other stones bear the names of some of his wives and children.

However strongly one must condemn Brigham Young's immorality and profanity, there can be no doubt that

only places in America where we saw ivy. We were much struck with the worn, haggard look of the Mormon women; the young girls were fresh-looking, though decidedly plain, but we did not see one happy, pleasant-faced middle-aged woman during our stay.

We left the Mormon capital after a stay of three days, travelling by the Denver and Rio Grande, the line gradually rising as it leaves the valley. Thistle-down seemed the principal product of this part of the country, to judge by the quantities which perpetually streamed in at the open windows as we sped along, and it gives a name to one of the stations. Two engines dragged us up to "Soldier Summit," the track following the course of a stream with blood-red stripes in its current flowing between high banks, the soil of which changed from grey to russet, red, and crimson, and *vice versâ* in a wonderful way, the dark, sombre green of junipers and pines here and there contrasting strongly with the strange hues of the ferruginous earth. And now a third engine comes to aid its panting comrades, the ascent becomes still steeper, the scenery changes from banks of gravel to walls of rock, torn and riven by surface glacier or subterranean fire into a thousand picturesque and fantastic shapes; here a huge ruined castle, there a half-finished cathedral. The lateral cañons look red and lurid in the gleams of the afternoon sun; white, bee-hive shaped buildings are pointed out as charcoal-burners' "ovens"; the uppermost strata of the cliffs project like deep eaves, and silver birches hide their foundations. They rise higher and higher, then close in on both sides in a rugged precipitous wall of rock with a narrow gap in the centre which looks made on purpose for our passage, this is "Castle Gate." The train stopped for a few minutes to enable us to examine this wonderful place; huge towering buttresses rose on either hand, like a Titanic wall, 300 feet in height, narrow even at the bottom, and at the top not more than eight feet in thickness, and so beset with oriels



CASTLE GATE

comparative silence rested our ears, wearied with continual crashing reverberation. At Pueblo we turned to the northwards, changed cars at Colorado Springs, and at nightfall reached Manitou, a spa in the Rockies, to be jolted to the hotel over a road which felt like a river-bed, having been cut up by a heavy mountain storm during the day.

We went to the "Mansions," a pretentious inn, chiefly remarkable for bad food, bad attendance, and bad situation. Next morning we drove to see a cave which had been discovered only eighteen months before. Climbing a ladder placed against the cliff, we arrived at a landing-stage, from which the mouth of the cavern opened; here we were furnished with a guide, and some common kerosine wall-lamps—most awkward things to carry. Proceeding for some distance down an inclined plane, the air feeling chilly as we advanced, we followed the tortuous windings of the grotto, sometimes so narrow that the passage was rather difficult, sometimes opening into halls hung with stalactites. The largest of these chambers is called the "Music Hall"; it is about 150 feet long, 30 wide, and 50 high. Mounting a flight of wooden steps, we reached a part of the limestone wall from which projected some thirty ribs or thin folds of deposit, looking like layers of greasy grey suet; they were quite moist, and a light placed behind one of them could be plainly seen from the other side. When struck with a stick they gave out clear bell-like notes, varying with the size of the fold. On this natural rock-harmonicon the guide played chimes, and two tunes in which could be traced a faint resemblance to Rousseau's "Dream" and "Annie Laurie." Many of the other stalactites in the cavern are translucent, and a few are as white as alabaster; they hang in many queer shapes—one little group, protected by wire netting, looks like miniature tendrils and bunches of grapes; this is called "Martha's Vineyard"—another goes by the name of the "Leg of Mutton," and a third bears the title of the "Fat Boy."

We walked about 600 yards through the various branches of the cavern, and when we came out again the temperature felt almost too hot! The thermometer in the Music Hall registered 54°, while that in the shade at the entrance stood at 80°. The air in the cave was quite fresh and pure, which shows that there is a through current, though it has not yet been accounted for.

The storm had destroyed the road to William's Cañon and the Garden of the Gods, so we had to content ourselves with visiting the soda and sulphur springs. The smell of the latter immediately reminded us of Ashinoyu in Japan, but a draught from the sparkling soda fountain was very refreshing and acceptable on that hot day. The trail to Pike's Peak passes these springs, and the mountain itself rises before you, the second highest point of the Rockies, only beaten by 200 feet by the crest of Grey's Peak, which is 14,566 feet above the sea, 1,214 feet lower than Mont Blanc. We drove for some distance along the pretty Pike's Peak trail, and left Manitou that afternoon to return to Colorado Springs.

Here we found most comfortable quarters at the "Antlers," a large Queen Anne building facing the railway station on one side and the main street of the



THE ROYAL GORGE.

town on the other. Although lower than Manitou, we were still 6,000 feet above sea-level, and the cool air was fresh and bracing in spite of a broiling sun. The town is traversed by wide boulevards; across these the shop-signs are suspended; they are cut out of sheet-iron, and hung from stout wires high enough to clear the most piled-up waggon-load, so that strangers walking through the streets give one the idea of being star-gazers. Aiken's store, on Pike's Peak Avenue, was well

of our vision; and when we suddenly struck the bank of the Platte River at a bend of its sluggish course, the change came as a surprise, for the great stream had given no previous sign of its proximity. The muddy, sullen, swirling current swept along amidst shifting sand-banks and treacherous snags, sometimes half a mile across, sometimes contracting to 500 yards or less, but always dull, turbid, and ugly.

At Lincoln we changed cars, and a little farther on, at 6.50 P.M., came to a cutting in a deep sand-bank,



and then passed very slowly on to an iron bridge suspended high over a broad muddy flood, the farther bank consisting of alluvial fields very little above the surface of the stream. Above these fields ran the train, raised aloft on light trestles, until the rising ground again reached our level, and then we stopped at Pacific Junction to find that we had crossed "mighty Missouri."

Here a Pullman dining-car was hooked on, and we went to it for dinner. Twelve tables, with seats for parties of four, occupied each side of the car, a row of lamps hung from the middle of the roof, and the kitchen was at the farther end. After dinner we returned to find the conductor making our beds. Some of our fellow-passengers had already turned in, and their snoring could be heard even above the grinding roll of the train! In the morning we found that one of the unmusical party was a huge woman, who proudly and loudly announced that she "scaled" 240 pounds, and her husband 290 pounds.

We now crossed the Mississippi, a far finer stream than the Missouri, and reached the great Phœnix City —Chicago the Wonderful—at 2.15 P.M. on the 29th August. During the afternoon we strolled down to the shore of the lake, where the waters of Michigan roll in like waves of the sea to break on the sandy beach, large ships lie at anchor in the bay, and the level of the far horizon is only broken by the white specks of distant sails I actually had to taste the water, in order to convince myself that it was *not* the ocean on which I gazed.

We stayed at the Grand Pacific Hotel, and found salt-spoons on the table—the only ones we saw between San Francisco and Niagara!

Certainly Chicago is the most wonderful proof yet given by the Americans of their unequalled boldness and unconquerable determination in the face of natural obstacles and dire disasters. Fifty years ago it was a small Indian trading-station, which rapidly developed into a large and prosperous town. In 1856 it was found that the site of the stores and offices nearest the lake was too low; so engines were made and plans invented by which the buildings were raised *en masse* from three to nine feet above their previous level, piles and huge blocks of stone placed beneath the foundations retaining them firmly at their new elevation.

This may be called the "trial by water"; fifteen years later came the "ordeal by fire."

On Sunday evening, October 8th, 1871, a lighted kerosine lamp was accidentally upset in a shanty in the south-western part of the town. The neighbouring buildings—almost all of wood—carried the flames to the immense lumber-yards along the river-bank, from which they spread through the city with fearful rapidity. The fire raged fiercely all through Sunday night, the whole of Monday and Monday night, and it was not till Tuesday morning that the last roof fell in. The ruins still smouldered and occasionally burst into flame several months afterwards.

The area devastated by the devouring element was about three and a half square miles. Nearly eighteen thousand buildings were destroyed, and a hundred thousand people rendered homeless. The loss was estimated at fifty millions sterling, and many of the American insurance companies went bankrupt. The fire happened late in autumn, but before winter many of the merchants had re-opened their offices in wooden booths or private houses; a year after the disaster much of the town had been rebuilt, and now it is one of the finest cities in America, and second in commercial importance only to New York itself.

It has several very fine public parks, of which Lincoln Park, on the shore of Lake Michigan, is the best, though Humboldt, Union, and Douglas Parks tread closely on its heels. The shops—especially those in State Street—are very handsome, while the public buildings would be admired anywhere. We drove along Milwaukee Avenue and Garfield Boulevard, fine broad thoroughfares; the surrounding country was flat, green, and highly cultivated.

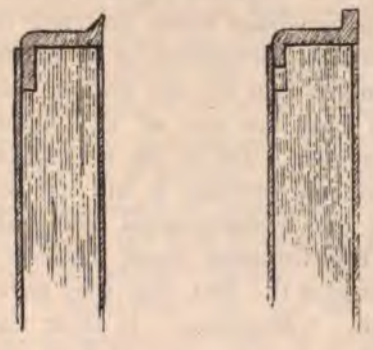
There are fine docks opening from the Chicago river in the centre of the town, and surrounded by the monster "grain elevators," worked by steam, which unload trucks and load ships, or *vice versâ*, with almost incredible rapidity and despatch.

We did not pay a visit to the pig-killing and pork-packing establishments, for though no doubt very marvellous in their way, they possessed no attraction for us; but I did spend a most interesting morning in the great car factory at Pullman City, about three-quarters of an hour by train from Chicago.

This "city" is a collection of handsome red-brick buildings faced with grey stone; from the centre of the main edifice rises a tall clock-tower, and the grounds in front are prettily laid out with grass-plats, flower-beds, and fountains. The engine-room holds the great main engine, two "walking beams" turning a driving-wheel thirty feet in diameter. The manufacture of locomotives, carriages, and "rolling stock" of all kinds is carried on here, but the "Pullman cars" occupy most of the extensive factories. I wished particularly to see the paper wheels being made, and the courteous superintendent gave me an account of the whole process with practical illustrations as we went through the different work-rooms. These wonderful wheels, which have quite ousted their wooden prototypes in America, are made of rice-straw paper; this coarse, light-brown material is stacked in great piles in well-ventilated store-houses. Each circular sheet is one-sixteenth of an inch thick, and from twenty-four to forty-two inches in diameter, with a round hole in the centre; twelve sheets at a time are saturated with ordinary flour-paste, placed together, subjected to a hydraulic pressure of 800 tons, and hung up to dry for a week in a temperature of 130°. Three of these are then pasted together, pressed, and again dried for a week. They are finally "blocked," *i.e.* several of these sheets of very solid pasteboard, enough to make about six inches in thickness, are pasted and subjected to increased pressure, which reduces them to four and a half inches, after which they are piled in the drying-houses, and remain in an even temperature of 95° for a period of from three to six months; if there is a heavy demand they are taken out at the end of the shorter period, but if possible they are left longer, though never more than six months for fear of their becoming brittle.

When these paper Cheddar-cheeses are to be made into wheels, the steel "hub" is forced into the centre hole by a 10-ton Nasmyth's hammer, and the whole disc into the tyre by one of 100 tons; the front and back plates of ¼-inch iron are bolted on, and the wheels are fit for issue. Krupp's tyres are now in use, but those of American manufacture are gradually superseding them. A good paper wheel wears out four tyres; at each re-tyring fresh bolts are inserted in the back and front plates; for the first renewal the old holes are enlarged, and thicker bolts used; the next time fresh holes are drilled, and for the final change these are enlarged. The flange of the tyre wears out first; when this happens the metal is "taken up," or drawn from the inner surface of the wheel, and a new flange made by bending it in a fresh place, thus:—

Sections of Pullman paper wheels.



Flange worn thin Re-flanged

An average, calculated from five years' returns, shows that a tyre, $2\frac{1}{8}$ inches thick, will run 434,452 miles with the loss of $1\frac{1}{4}$ inches of steel, reducing it to $\frac{7}{8}$ of an inch, when it is considered to have done its work.

The wheels are made of different sizes, from 24 inches to 42 inches in diameter; those in general use at present are 33 inches, but the demand for the larger sizes is rapidly increasing; they cost from 65 to 75 dollars each, about £13 to £15.

Over 3,000 hands are employed in these works; they have a theatre, library, hotel, schools, and co-operative stores; the last, called the arcade, has good shops, selling every article of ordinary daily requirement, and a great deal of very handsome furniture, made by the workmen during their leisure hours.

The factories occupy about forty large buildings, and there are besides these the church, chapels, arcade, barracks, and many cottages for the married men, all in Queen Anne style. A very handsome octagonal water-tower supplies the works and the community; in short, everything about the place testifies to the energy and enterprise of Mr. George W. Pullman, who initiated his vast undertaking by the purchase of 3,000 acres of land for £200,000, and whose last outlay was £20,000 on the hotel.

Our short stay at Chicago intervened between two disasters; just before our arrival, one of the great dynamite factories on the outskirts blew up, causing the loss of several lives, and within four hours of our departure on the 31st of August, a severe shock of earthquake was felt, a wave of the great convulsion which did so much damage at Charleston.

NAVAL AND MILITARY NOTES AND QUERIES.

THE GERMAN ARMY OF THE FUTURE.—Baron v. d. Goltz, in his great work, *Das Volk in Waffen*, remarks that the Germans of to-day are in a fortunate position. The star of the young Empire has just risen above the horizon; its course is all before it. The way to the zenith is more pleasant than the downward path from thence. If ever a rising State gave promise of durability it is Germany, strong in arms and united, amidst the great Powers of Europe. Such a position is rightly looked upon as perilous, but the very sense of danger keeps them alive for action. If, however, their country were to rest upon its laurels, giving way to the pleasant dream that its position, its name, and its security has been established once and for ever—that, after all, its neighbours are not so badly disposed towards it—in such a case, it would necessarily, ere long, become their spoil. Open upon all sides, in the way of all who wish to extend their confines, its own borders occupied by shreds of nationalities which gravitate outwards, either on the account of traditions, or of disquiet and love of change, unprotected by any natural barrier, it would necessarily bear the cost of any disturbance of the European system. But as far as human foresight can now discern and provide, it will not come to this; a strong arm and a sharp sword will guard the heart of Europe. The Germans must, however, always keep before their eyes the fact that they have still to reach the summit. "Excelsior!" is their watchword. Uninterrupted work in completing their organization both for offence and defence will be their best policy for a long time to come. Their best endeavours must, at the same time, be given to raise the moral force of the nation, which is all-decisive in action to raise it, not only to maintain it as it is; for "moral force," says Scharnhorst, "can never remain at a standstill; it must decay as soon as no attempts are made to strengthen it." They must, then, first of all convince themselves, and those who are growing up to be their successors, and whom it is their business to educate, that the time for repose has not yet come, and that the forecast of a final struggle to establish the permanence and greatness of Germany is no chimera engendered in the brains of ambitious fools, but that this struggle will most surely take place sooner or later, with all the violence and earnest purpose which are the characteristics of decisive national conflict preceding the definite recognition of a free State. Upon this conviction must they base their determination to labour constantly by example, word, and writing to strengthen and increase in their own breasts, and in those of their children, allegiance to their Emperor, a passionate love for fatherland, a determination to shrink from no trials, however hard, a spirit of self-denial and devotion. If the Germans act upon these principles, the German army, which is and must continue to be the *German Nation in Arms*, will not only certainly gain the final victory, but, at the same time, destroy *every degrading principle of Republicanism*.

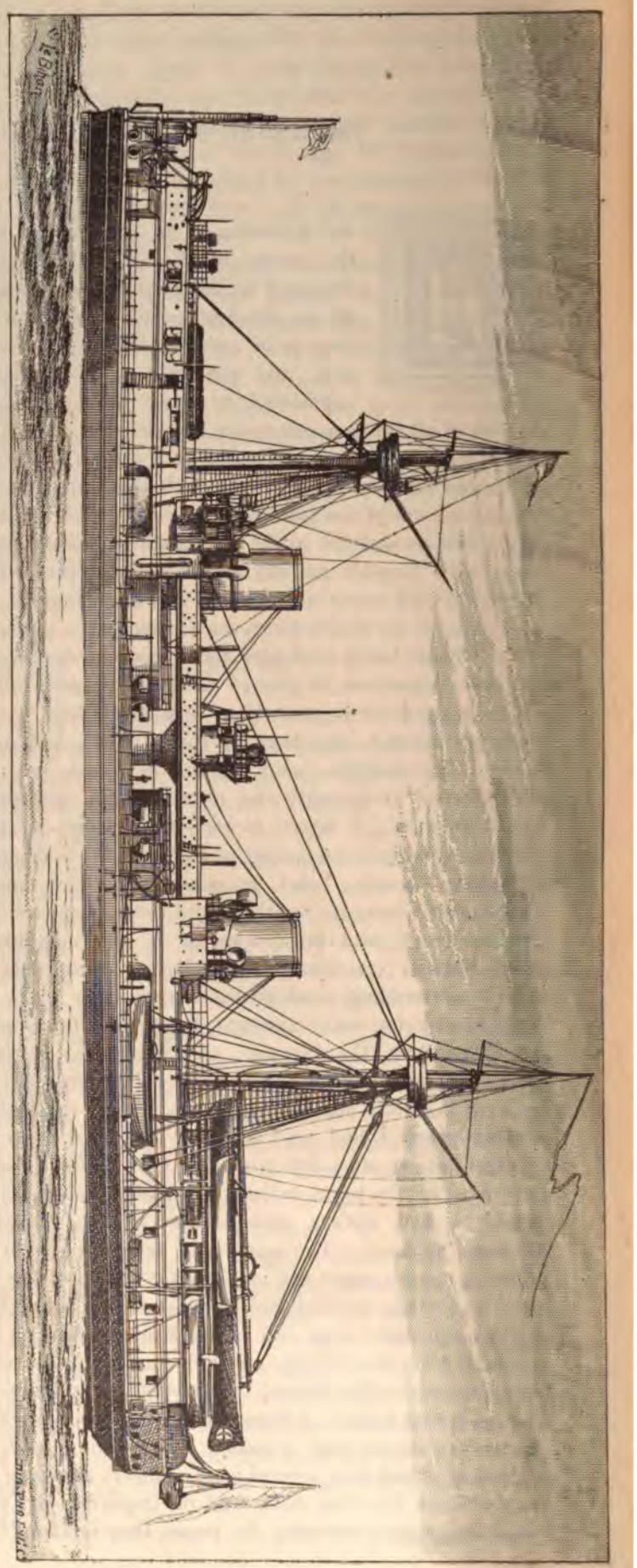
R. O'BYRNE.

smart enough to suit *him*, and that the next time he brought them out, he expected the movements to be much better performed. He said that he would have more smartness in skirmishing. "Remember," he called out, "that the great art of skirmishing is quickness of movement, and getting cover as rapidly as possible. You have not been able to get cover to-day, because the ground has been open, but you must recollect that whenever you are skirmishing against the enemy, you must look for cover wherever you go, and take it at once." He concluded his harangue with the remark that if he found they did not move sharper in skirmishing next time, he would have a lot of London cabs down and move the men about the field in the vehicles, just to shame the sailors!

At the final words of that harangue, a huge bronzed and bearded quartermaster, who had been performing the duties of sergeant-major to the battalion during the exercise, and who stood by the young officer grinning from ear to ear, swayed from side to side with suppressed laughter. The young officer then gave the orders: "Front." "Open column from number one," and, at the conclusion of this movement, "The column will march back to the *Excellent*." "Fours, right." The company leaders gave their executive commands. The bugles struck up a quick step, and the men marched back to the *Excellent* with a fine swinging elastic gait.

The body of men who carried out the battalion movements on Southsea Common that morning, were the finest set of sailors I had ever seen.

Many other pleasant thoughts of old days at Portsmouth came into my mind as the train sped along. We arrived there at last, and I made my way down to the stage by the side of the Victoria Pier to embark in the launch of the *Inflexible*, from whose decks I was to witness the great Naval Review of 1887. The water about the stage was crowded with craft of all kinds from the different men-of-war at Spithead, for the reception of visitors on their way to the fleet. On the steps and around them, were naval officers in numbers and a well-dressed crowd of visitors, many of them ladies, waiting for the different boats on which they were to embark. All was order and regularity. Each ship's launches, pinnaces, and other boats, embarked their different quota of visitors from off the landing-stage, and steamed away, their places being taken by other launches and pinnaces, which, in their turn, took on board the visitors to their ships, and sped along to Spithead. At last the launch and two boats in tow from the *Inflexible* came round the end of the Victoria Pier, and approached the landing-stage. The ships' visitors embarked thereon, and in a few minutes we were steaming through the bright green water towards Spithead, to go on board the ironclad from which we were to view the events of the day. In



H.M.S. "INFLEXIBLE."

half an hour, or a little more, we were alongside the noble ship-of-war. Several of the officers came down the steps at the side of the ship, and assisted us to reach her deck. Friendly greetings and congratulations were quickly over. The officers were all dressed in frock coats with epaulettes, cocked hats, and white trousers; the seamen in straw hats, blue jackets, and white trousers. As the review would not take place until the afternoon, the officers' first duty to their visitors was to take them over the ship. This occupied a considerable time, the officers vying with each other in explaining, especially to the ladies, every matter of interest connected with the ship and its machinery. The inspection of the ship being over, the visitors were all invited to the Ward-room Mess, to partake of a capital luncheon, and then, as the officers had various duties to carry out in completion of arrangements for dressing the ship, and in making all square for the reception of the Admiral in command of the fleet, the visitors were left to view the magnificent sight spread before their vision, from the Solent to the extreme point of the Isle of Wight in the far distance. The sight was a grand one indeed, and sufficient to make an Englishman's heart swell with pride. From right to left in two long lines, lay enormous ships-of-war in majestic silence upon the waters of emerald hue. Looking ahead, on the port side, was a long line of torpedo and gun boats, the torpedo-boats snake-like in appearance, and giving no indication whatever of the deadly power within their tiny hulls. The appearance of the huge ironclads gave one the undoubted impression of a terrible strength for offence. They were symbolical of a power for destruction that no other country in the world could place on the surface of the waters for the protection of its interests. As one gazed at the sight, the refrain of the well-known national air, "Britannia Rules the Waves," came into one's mind with a potent force. The words of a celebrated political song mentally followed those of "Rule Britannia":

> We do not want to fight,
> But, by Jingo! if we do,
> We have the ships, we have the men,
> We have the money, too!

But what about the guns? was the next thought. Ah! there comes the rub. Have we the guns? Time alone will show.

The ironclad I was on board of, was one of a line which consisted of the following vessels:—The *Agincourt*, *Black Prince*, *Collingwood*, *Iron Duke*, *Inflexible*, *Archer*, *Rattlesnake*, *Edinburgh*, *Devastation*, *Ajax*, *Neptune*, *Shannon*, *Amphion*, *Mohawk*, *Rover*, *Calypso*, and the *Arethusa*. The line beyond, nearest the Isle of Wight, was formed of the *Minatour*, *Imperieuse*, *Conqueror*, *Sultan*, *Monarch*, *Mercury*, *Curlew*, *Hercules*, *Hotspur*, *Invincible*, *Rupert*, *Belleisle*, *Mercury*, *Fearless*, *Active*, *Volage*, and the *Inconstant*. Beyond these again, and yet nearer to the Island, was a line of splendid troopships. Inside, nearest to Portsmouth, were the gun-boats and torpedo-boats. The ironclads were anchored at full cable's length from each other, in "line ahead," with the utmost exactness.

The *Inflexible* is a "swagger" ship, so called by naval officers who deem it an honour to be appointed to a British ironclad of first-class fighting power. She is a two-turreted ironclad, with protected citadel or middle-part. The armour-plating around the turrets is 16 inches thick, with 18 inches of wooden backing and iron inner skin. The citadel, in which are the motive and loading parts, has around the outer side 24 inches of armour thickness, that runs off to 16 inches



Admiral Sir George Willes, K.C.B.

along the fore and after parts. Her side-backing is from 25 to 17 inches thick. Her citadel bulkheads have from 25 to 14 inches of armour and 24 inches of backing. In each of her turrets are two 80-ton guns, muzzle-loading. On her upper deck or superstructure, she has eight 4-in. 25-pr. breech-loading guns, two 6-pounder quick-firing Hotchkiss guns, for use against torpedo-boats, and a full complement of 1-inch Nordenfeldt and ·45 calibre Gardner machine-guns. Her displacement measures 11,400 tons; her indicated horse-power is 8,000; her draught of water is 25·5 feet, length 320 feet, breadth 75 feet. She was completed in 1881 as a first-class battle-ship of the British navy.

After a long view of the grand display of naval fighting

power which met my view this bright and sunny morning, I wandered once more about the magnificent vessel, upon which I was to witness the Royal Yacht and other steamers that were to pass in procession between the iron-clad monsters of the deep. I first struck up an acquaintance with the chief engineer of the ship, Mr. Hull, whose rank in the Navy is that of Fleet Engineer. We began to discuss engineering matters in connection with the Navy. After a few remarks, the gallant officer volunteered to take me over the whole of his charge at the earliest possible opportunity. We afterwards went into his engine-rooms. I examined, and had explained to me, the whole of the motive power of this splendid ship of 11,400 tons' displacement. Mr. Hull had good reason to be proud of his engines. They were equal, in some respects superior to the driving-power of any other ship afloat. They were in magnificent order. Every part was scrupulously clean, and fit for instant service in all its detail. The whole of the machinery was evidently maintained at the highest point of excellence, and reflected the greatest credit on this able engineer's attention to the motive-power of his ship. He then took me into the electric generating room. Before entering this, he desired me to take my watch from its guard, wrap it up in my pocket handkerchief, and hand it to the sentry outside the door, otherwise, the amount of electricity contained in the room would seriously injure the works of the watch. The electric generators were all in full operation. The heat set up by them in this room was 130 degrees. I had not been there half a minute when I found myself perspiring most freely. The stokers employed in this room were all hard at work, lightly clad in cotton garments. It seemed marvellous how they could live more than an hour or two in such a heated atmosphere without becoming exhausted; but the engineer informed me that they carried out their important duties in that room with wonderful tenacity of purpose, and without a grumble; moreover, that they slept in an adjoining compartment. It appeared to me extraordinary how men could keep their health under such circumstances; but Mr. Hull informed me there was little or no illness amongst the stokers employed amidst this terrible heat. After a full explanation of the powerful means of generating electricity in this room, a most interesting subject, we passed down into the torpedo-casting compartment. One could not help feeling intense astonishment at the great complexity of the hydraulic, electrical, and other machinery with which this compartment was filled, for the purposes of loading and ejecting the deadly torpedoes that were ranged side by side ready to cast at the ship's enemies. This compartment alone is an entire and complicated charge for a competent engineer, who has to be fully acquainted with electrical and hydraulic work and steam power in all their details. In this room, there is also in charge, a torpedo lieutenant whose sole duty is that of loading the torpedoes, adjusting their firing and other gear, and seeing the missiles placed in the firing-tubes with their huge ball sockets at the fore-ends. Mr. Hull informed me that the whole arrangements for emptying the firing-tubes, placing the torpedos therein, closing the apertures in the rear, and starting them on their deadly career, rested with the engineer. I was told by Mr. Hull that altogether the ship had 27 pairs of engines for the performance of a great variety of steam-power duties in connection with the ship and her fighting arrangements.

The details of the method of loading and casting the torpedoes at the ship's enemy are very complicated and instructive to the naval or military man, and would greatly interest many of my readers if given herein; but as this is a personal narrative of the events of the Naval Review as they appeared to me, the statement of the torpedo-casting operations must be reserved for some future occasion.

The Chief Engineer accompanied me into the citadel, where I saw the loading and gun-firing arrangements, together with the working of the guns and turrets. Here some remarks were made by me on the loading arrangements as connected with the bursting of the same class of gun on board the *Thunderer*, that attracted the attention of the captain of the turret, who was working the levers and other gear for my observation. He began a discussion with me on the subject of the bursting of the *Thunderer's* gun, that was broken off by some order from the deck. He then said, "I would like a few minutes' private conversation with you, if you please, sir, later on." "Certainly," was my reply, as I had reasons to once more enter into particulars relating to that unfortunate and much-fought-out subject. Mr. Hull and I then went on the upper deck, or superstruc ture. I examined the working of the Hodgkiss quick-firing 6-pr. for action against torpedo-boats, a beautiful gun of long range, great accuracy of fire, and simplicity of construction. Here we met an officer, who, while we were discussing the breech arrangements of the 4-inch calibre guns, joined in the conversation. An animated discussion then took place, in which a young lieutenant took part, who came up to the gun at which we were standing. I ought not to have felt surprised at the great amount of knowledge of gun-construction and general acquaintance with gunnery in all its branches, that these officers displayed in their remarks. It was evident that they were quite up to the mark on all the gunnery questions of the day, and it was clear that there was an earnestness, even a seriousness, in their observations, which betrayed an anxiety about the fighting qualities of their weapons that was very remarkable. The young officer who joined in our discussion was the Gunnery Lieutenant. If I remember correctly, his name

a convenient port-hole all to myself, at which I could witness the Prince of Wales in one of the Royal yachts as he passed by. There was a long wait. The Admiral, the Captain, and some of the officers of the ship went up to the bridge again. All was silence. Order and regularity reigned supreme on board the *Inflexible*. As far as the eye could reach with aid of a good field-glass, there was the same state of discipline on every ship. The wait seemed long and tiring. The seamen on the yards and about all the ships, seemed immovably fixed, as if they were parts of the vessels. The sight was grand indeed, and soul-stirring, as the eye wandered from ironclad to ironclad, from gun-boat to gun-boat, and from torpedo-vessel to torpedo-vessel, all so taut and trim, and dressed out with flags wherever they could be displayed.

The sun seemed to shine with unwonted brightness, on this auspicious day. A gentle breeze stirred the emerald-coloured water into little golden splashes, against which the strong light dashed and sparkled. Myriads of flashes seemed suddenly to come to the surface on the sea, to disappear as swiftly, to rise again, to sink below, then to shine for one brief instant, and again to hide themselves beneath the ever-varying ocean surface. Her Majesty's weather-star was in the ascendant on this joyous day, long to be remembered by all who witnessed the great Jubilee Naval Review of 1887.

"He is coming," is heard amongst the visitors, who are so eagerly looking out from the ports below. And slowly a Royal Yacht steams along between the gun and torpedo boats, and the Port Line of ironclads. The band strikes up "God save the Queen," officers and sailors take off their hats as the yacht passes by each ship. The Prince, in naval uniform, stands on the bridge. Around His Royal Highness are a number of other officers. Amongst them I can almost declare that I perceive, also in naval uniform, His Royal Highness the Duke of Cambridge. Perhaps my eyes deceive me. My glass, however, seems to bring out his features clear and distinct. The "Duke," in a brilliant naval uniform! It surely cannot be. If it is not the Commander-in-Chief of the British Army, it is some one very like His Royal Highness. The yacht, and her accompanying vessels, steam towards the end of the line nearest the Solent, and the visitors are released from below for a time. The Admiral and the other officers, remain on the bridge. Various signals by bunting and semaphore pass from the *Inflexible* to the other ships, and are answered. The visitors spread themselves about the ship, and now have ample time to look at the different vessels of war as they sit so gracefully and so gaily on the water. The expressions of admiration are loud and frequent. Intense satisfaction is manifested by those whose privilege it is to witness from the decks of the *Inflexible*, the display of naval power on this great day. A conscious pride is evident in every remark that is heard around. No misgiving as to strength of ships, or guns, or respecting the officers, or men, is shown by the general body of visitors. All is unqualified admiration and delight. They are informed that not a ship has been withdrawn from any of the protecting squadrons that are now at sea, and that nearly the whole of the ships present have been specially commissioned for this review, and that their officers and sailors have been drawn from various available sources. Also that, as soon as the review is over, the whole of the vessels now engaged will proceed on special service, and on conditions approximating as closely as possible to those of actual warfare, sealed orders for which will be opened directly certain positions are reached; in other words, that an instructive cruise is to be undertaken, the results of which cannot be other than advantageous.



Staff-Commander J. B. Walker, R.N.

While the visitors are engaged in leisurely viewing the scene, orders are once more heard. "Stand by the gun!" "Clear the decks of all but officers and men." The orders are promptly executed. "Load!" The gun is ready to fire. There is a short wait. A bunting signal goes up: "Fire!" and sharply out goes the first gun of a royal salute. Gun after gun from every ship answers the first round from the *Inflexible*. Then is heard the constant boom of cannon, as flash follows flash around. The smoke rolls across the sea, darkening it into a sombre hue, and then slowly rises upwards,

obscuring the sunlight. The booming of all the guns intermingles, until the sound of the firing becomes like the roaring thunder reverberating in all directions. On looking around, it would almost seem as if there is a terrible sea-fight in progress, as the lines of vessels all appear to be firing into each other. This illusion is dispelled by the circumstance that no whizzing of shot, nor scream of shell is heard. The guns suddenly cease firing. A sudden, and what seems to be a solemn stillness, follows the thunder of the guns, as the heavy smoke slowly lifts and spreads away above. The sun shines out as the smoke clears away. The Royal Yacht, with the Royal Ensign flying at the main, is seen to slowly approach from the Solent, followed by a number of other vessels. The captain calls out from the bridge, "Hats to be taken off as the Royal Yacht approaches the ship." "Three cheers are to be given by word of command as Her Majesty's yacht comes abreast of the *Inflexible*." These directions are passed around the ship by officers specially stationed for repeating orders. The visitors go to their former positions at the ports—all but one, and he, for the first time in his life, directly disobeyed orders, and flew in the face of the Queen's authority. He was dressed in a blue suit, and he thought, if he could manage to place himself amongst the officers or sailors in such a position as not to be perceived by the Admiral or the Captain, that he would have a better sight of Her Majesty and the procession of vessels that accompanied her, than out of a port-hole. He, therefore, stationed himself in a certain part of the ship, where he could keep one eye on the Admiral and the Captain, and the other on the Royal Yacht procession, and that, if the one eye caught the Admiral and the Captain's four eyes, he would disappear under cover and out of their sight for a minute or so. The disobedient visitor was the writer of this narrative. Steadily and majestically the Royal Yacht and following vessels steamed down between the line made by the Port Division and the gun and torpedo boats. As the Royal Yacht neared each ship by which her course was marked, distant, and then closer thrilling cheers went up—cheers that sent the warm blood coursing through one's veins in uncontrollable excitement. The Royal Yacht came near the *Inflexible*. "Hats off!" was the command. Closer the yacht moved towards our splendid ironclad. "Cheer the Queen," was the next order, and out from every brawny throat came three "hurrahs" that rent the air, so well timed and so grandly were they given by all the men and officers. The band then played the National Anthem. The Editor visitor had taken off his hat and joined heartily in the cheering. He had just replaced his *chapeau*, when his eyes caught those of the Admiral and Captain looking at him, as he thought, somewhat sternly and inquiringly. An officer at that moment touched him on the shoulder and said, with a sort of twinkle in his eyes, "I must report you to the Captain, sir, for disobedience of orders. He is sure to direct me to put you in irons until the visitors leave the ship." The reply was, "I admit the disobedience of orders, sir, but I trust the anxiety to see Her Majesty distinctly, and the very natural excitement consequent on the cheering, will be a sufficient plea for your overlooking the circumstance." "Well," was the rejoinder, "shift a little under the bridge, so that the Admiral and Captain may forget your presence where you ought not to be; then if you will join me in some 'moisture' presently, perhaps I won't have you punished for disobedience of orders."

Every officer and seaman kept his allotted position after the procession of ships had passed. The cheering and the strains of "God Save the Queen" were taken up by each ship as Her Majesty's Yacht passed the vessel, until the end of the line was reached. There was then another long wait. With one's field glasses, one could perceive that the Royal Yacht had gone far beyond the two lines of ships, and it almost seemed as if Her Majesty had given orders to go right out to sea. Some of the officers remarked that the Queen's boat was taking a long stretch out before turning. Some time elapsed before the Royal Yacht was perceived to be on the turn in the far distance. More bunting signals were sent up, and the officers and Marine Artillery and Royal Marines were then moved to the starboard side of the *Inflexible*. Slowly, as before, moved the Royal Yacht, now between the Port and Starboard lines of ironclads, and as she came abreast of each vessel, the cheering and band-playing of the National Anthem were repeated. I had a capital sight of Her Majesty and Royal party as the yacht passed between the lines, and used my field-glasses throughout the return of the procession to some purpose. The Queen was seated near the stern of the yacht. Close to Her Majesty were two or three ladies of her suite.

I could see the stalwart form of the Crown Prince of Germany, with his plumed helmet, a noble figure—a warrior soldier, and how different in appearance from the slim youth, as I remembered him when he came to England to be married to Her Royal Highness, our own Princess Royal, whom I saw, pale and tearful, go down into the ship's cabin at Gravesend with her handsome and beloved father, the Prince Consort, there to bid him farewell on her departure for that powerful country which is proud to own her as the affectionate wife of its greatest prince and one of its finest soldiers—as the mother too, of that country's future Emperor, if Providence so wills it.

As we watch her progress, the Royal Yacht has nearly passed to the end of the double line of ironclads, when she stops. Some signals are observed to go up to her mast-head. They are answered and repeated from the *Inflexible*. Our steam launch is ordered to be instantly manned.

The Admiral and the Captain come down from the bridge. They step down the side ladder and on board the launch, which quickly steams away towards the Royal Yacht. We perceive steam-launches from other ships in full speed in the same direction. The signal from Her Majesty the Queen is, "The Admirals and the Captains of ships to proceed on board the Royal Yacht." After a short interval the Admiral and the Captain return to the ship. The officers are informed that "Her Majesty has been pleased to express her high approbation of the magnificent appearance of the fleet which has taken part in this day's review." Then the officers and seamen are released from their posts. The sailors are seen to be coming down the ratlins of the masted ships and off the yards, and all the visitors of the *Inflexible* are asked to come once more to the Ward Room, there to partake of tea and coffee or other refreshment. They express their warmest thanks to those officers who have been permitted to invite them on board to witness so magnificent a spectacle, which they say they will not forget for the remainder of their lives. While the visitors are partaking of tea and coffee, the guns are heard again, as they fire another Royal salute when Her Majesty's yacht proceeds towards the Solent. The Admiral then leaves the ship.

A piece of good fortune now awaits me. The young lieutenant, Mr. T. Ingram, through whom and Staff-Commander Walker, I have received my invite, asks me where I am going to view the illuminations. I say, "I really do not know; my bag with my clothes are at the railway station, awaiting my getting a room at some hotel." He says, "Never mind your bag. I'll manage, if permitted, to give you a shake down on board, and find you a razor to shave with in the morning." I am only too delighted. Then, with much kindness, the Surgeon, who has heard the conversation, says, "I have leave to go ashore, and if you would like to have my cabin, it is quite at your service; my servant will attend to you and your wants." I thank him heartily, and say I will gladly avail myself of his kindness. All the other visitors prepare to depart, the launch and boats are ready to take them to the shore. Good-byes and reiterated thanks are now spoken, and I am left on board to see the forthcoming illuminations. The officer who had threatened to report me for disobedience of orders catches sight of me, as I watch the launch and boats full of visitors receding in the distance, and alludes to that "moisture" which was to be the condition of his not having me put into irons. He suggests that I should fulfil my promise. "*This* time," I say, "if I am ordered, I will obey." "Then I order you into the Ward Room Mess." I go there at once, followed by the officer, who calls up one of the mess servants, and tells him to bring a certain kind of "moisture." The servant obeys. The officer *orders* me to drink. I carry out his order at once. We pledge each other's very good health. The disobedience of orders incident on deck is at an end.

As my "black uniform" is in my bag at the railway station, I "wash and brush up" for dinner. The officers dress in mess attire, and we sit down to a fairly good meal, considering, as my young friend Ingram explains to me, that the mess caterer is in "chokey," otherwise, in the cells, awaiting the Captain's decision on Monday, for staying away from the ship without leave, and for intoxication. After dinner a number of us retired to the smoking-room, a comfortable place, to enjoy our weeds, or pipes, and a chat over the events of the day so far. The officers discussed them freely and



Commander W. H. Pigott, R.N.

with that open-heartedness that is one of the principal charms of their society.

"A sailor's heart is on his sleeve." All the conversation here was free, open, and above board. There was a manly ring in it that was very pleasant to hear. "Shop," or rather professional subjects, were discussed in an outspoken way, and with an earnestness that showed how greatly interested were all the officers in their splendid profession. They were polite to each other in a manly way. Distinctions of rank seemed to be dropped here, though they were not really so. I observed that a proper deference was shown by the younger officers for the opinions of their seniors, although they so freely gave their own. I enjoyed this smoke here greatly, and others too, later on. I learnt

much by listening attentively, once or twice artfully starting some professional topic, so that I might profit by the discussion thereon. Amongst other matters—and it was not a fair question, I admit—I inquired how they liked Captain Seymour, the officer in command of the ship? I had asked my young friend Ingram this question previously. He and the rest said, "Well, he is a strict officer, and *will* have everything done promptly and properly; but he is a perfect gentleman, and we all like him exceedingly; he is just, and never harsh; and we don't care how often we sail with him." I do not think any commanding officer could possibly bear a better reputation. So far as my observations went, he was cool, collected, and quick in appreciation of events or situations. He seemed a captain that would never lose his self-possession, no matter how dangerous might be his position—the commander that one would like to be with, when he took his ship into action.

Our smoke over, we walked the deck while the preparations for the illuminations were in progress. Large square boards, with "V. R." in incandescent lights, had to be hoisted into position on each side of the bridge. Lanterns had to be ranged for lighting all along the decks and around the turrets and superstructure. Rockets in numbers, blue lights, and Roman candles, and other combustibles had to be brought from the magazine. Mr. Hull, the chief engineer, had to leave the dinner early, to see that the electric lighting arrangements were all in order, so that no failure might occur. Staff-Commander Walker, Commander Pigott, and my young friend Lieutenant Ingram had important work allotted to them during the evening, in connection with the lighting of the ship and the discipline connected with the arrangements. I watched these attentively. All were carried out systematically, and without fuss. Orders were passed and repassed, so that there might be no misunderstanding by anyone. Every officer and man had his allotted place in the programme, with full instructions to act only on the orders from the Captain. The *Inflexible* being the Flag Ship, all the other vessels were to take the time and signal from her. The Captain had his programme of the illuminations ready at hand. In fact, all was order and system.

It was almost dark when the time approached for the commencement of the illuminations. Long before dusk, crowds of people could be perceived on Southsea beach, on the forts lining the approaches to the harbour, on the Isle of Wight, in short, on every spot of vantage; while steam-boats came slowly out from Southsea and the Isle of Wight, filled with people. Some of these ventured too near the lines, and were warned off by the steam-launches of the Guard Ships. I went on to the bridge and took a position close to the signal rocket. The captain and commanders were above me, I think near the conning tower. Captain Seymour first ascertained if every detail of orders was correctly understood, and whether every officer and man was in his place. Then he gave explicit directions that nothing was to be done without his order, which was to be immediately passed in loud tones around the ship. Having satisfied himself that all was ready, he quietly waited for the hour of nine by the ship's bell. At one minute to the hour, he gave the command, "Stand by the lanterns." Every man took up a lantern, and held his lighting match ready. Nine o'clock came. "Fire the rocket," was Captain Seymour's next order. "Stand a little way off, sir," said the firer to me, "out of the way of the back flame." I had seen rockets, a good many of them, fired before, and needed not the caution, as it was my intention to stand back the moment I saw him about to apply his match. I was moving backwards as the man



Lieutenant T. Winnington-Ingram, R.N.

spoke. The match was applied—with a loud roar, away upwards went the rocket. Its stars burst forth. In an instant every lamp was alight about the ship. Looking around, I could see that all the other ships had displayed their lanterns around their sides and rigging; a pretty sight, but as nothing compared to that which followed. The man in charge of the rocket firing, then pushed a number of rockets through a quantity of holes in a square board securely fixed, and brought the ends of the long sticks into a leather bucket suspended below the holed wooden square, and fixed the communicating match. These rockets were for the next signal, which was to be a "bouquet" of rockets. It was necessary to stand clear out of the way of the back fire

of this bouquet, and of something else, when they were fired, as I had known before. "Stand by the blue lights," from the Captain. The men took them up and held their matches ready for lighting. "Are you all ready with the blue lights?" "Yes, Sir." "Then turn out the lanterns." The lanterns were out in a moment. "Fire the bouquet." The communicating match was lighted, the firer stepped back under cover—with a tremendous roar and rush, away soared the batch of rockets into the darkness above, many of them bursting prematurely, as I had anticipated, and sending the blazing stars around our feet, to be kicked away as rapidly as possible. From every ship now, went up corresponding bouquets of rockets, whose bursting stars illuminated the scene around for miles. "Fire blue lights," was the next command. Instantly, the whole of the ship's sides, turrets, and superstructure were ablaze with those beautiful and powerful illuminators. So were the sides and rigging of all the rest of the ships. The scene now was weirdly grand, as the smoke from the lights was seen curling over every ship and enveloping the rigging of those that were masted, partly hiding them from view, and being swept aside by the light breeze, to curl over the ship once more, and to be again moved aside by the wind. The "V.R." in incandescent light, had just previously been turned on. The letters were about seven or eight feet in length, and, on the ship, presented a fine exhibition of electric lighting. Some of the ships now put in force their electric lanterns, notably a vessel close to the Isle of Wight, not a war-ship. Her light swept the whole water right across to Southsea beach. Then the order was given to turn on the bow and stern electric lights of the *Inflexible*. They were tremendously powerful, and quite threw into the shade those of the other ships. The gallant Admiral, Sir George Willes, was now on board, although "not to interfere," as he told the Captain. Indeed, with a gentlemanly consideration he "hoped he was not in way, he had come on board just to see how everything was going on."

So splendidly did our lights act, that one by one we searched every ship along the lines, and far beyond to the Isle of Wight, whose pier could be seen to be crowded with people. The ship nearest to us, I should say about 1,500 or 1,600 yards off, we searched from stem to stern. Every officer and man on board could be distinctly seen, and we could easily have aimed the guns of both our turrets at any part of her hull with terrific effect, if we had been fighting her. The sight of the lights sweeping the water was surpassingly strange and wondrously beautiful. At one spot was intense darkness, then a sudden and brilliant light that shot straight out and expanded into a long fan-like shape, whose broadest part met the distant horizon. Then the broad fan-light moved sometimes slowly over the rippling sea, searching every wavelet, or, suddenly changing its motion, it flitted from point to point, as if in wild capricious ghostliness. As the lights crossed and recrossed each other, they seemed to be intensified upon the point at which they met, to an extent that reflected the beam back upon one's vision in a startling manner. The optical effect of this was marvellous. "Stand by the rockets!" was again the command. Once more the fiery streams went upwards. "Stand by the Roman candles!" Again were the ships illuminated with grand effect, the alternating coloured stars that shot forth from the candles seemed to spring around the ships in weird sportiveness, and, as they burned, changed the shade of the smoke to almost every hue. Rockets in endless variety and profusion continuously swept above the scene, until the whole heavens seemed ablaze with parti-coloured stars that drooped and fell in graceful curves. The Admiral finally gave the



Mr. H. Hull, Fleet Engineer, R.N.

order "Form the arch." Suddenly the two electric lights on board the *Inflexible* shot upwards, and there remained. Instantly the whole of the other electric lights on board the war-ships were pointed towards the sky. A few movements of the lights, and then all were fixed into a splendid arch of brilliant light that met in the zenith. Transcendent in its loveliness was then the spectacle. It seemed as if two or three magnificent Aurora Borealis whose brilliant streamers had shot up from different horizon points, had met in mid-heaven and there intermingled, to illuminate the whole of space beneath. Over all the surface of the sea, phosphoric beams of light appeared on the upper part of the little billows for a moment, to swiftly run down into the shadows and reappear at the tops of the next waves, and to

in the night in horrible agony." Of course it will be said that both the lieutenant and the warrant officer ought not to have been in the unprotected part of the ship. Still, I have thought it worth while to relate

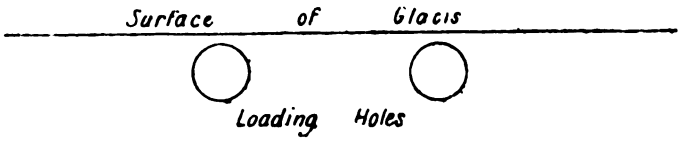


FIG. 1.—Front Section of present Loading Holes, facing Gun-muzzles and Turrets.

the incident, as some corroboration of effects I had previously thought were likely to be produced amidst the unprotected ends of citadel ships.

I rose at 7.30, tubbed, dressed, and went on deck. The morning was clear and bright. A smart breeze was blowing. A sharp walk up and down the deck for half an hour fixed my appetite for breakfast, which was not quite ready, so I went up to the bridge and conning-tower. An inspection of these convinced me that I should not like to be in the conning-tower when a six-inch shot came over the quarter and struck the tower fair, say, from 2,000 yards distance. This "dodge-round-the-corners" place, with its peep-hole slits, would collapse utterly if thus struck—so would the officers within it. The wheel-house would go in a similar manner, if struck with a five or six inch shot. However, wherever there is fighting, there is danger to life, and I do not suppose any conning-tower in such an elevated position could be so constructed as to keep out a heavy shot. It is fortunate that the *Inflexible* has means of steering other than from the elevated wheel-house, or it would be bad for her in action, in case the steering apparatus on the superstructure was shot away. In the conning-tower, I counted twenty-four mouthpieces for speaking through, with corresponding tubes that led to different parts of the ship for conveyance of orders from the captain. There were also, if I remember correctly, twenty electric boxes with contact buttons in them, all then locked, for conveyance of orders to the fighting and motive portions of the vessel. The interior of the conning-tower seemed a mass of speaking-tubes and mouth-pieces and electric boxes with contact buttons. The steering-room had thirteen or fourteen speaking tubes, and eleven or twelve electric boxes with contact buttons. The steering-wheel was a marvel of ease in working. It appeared to me that one man here could easily steer this fighting monster of the deep, so exactly and evenly adjusted was the connecting apparatus. I watched the signalman curiously, as he sent up several flag signals while

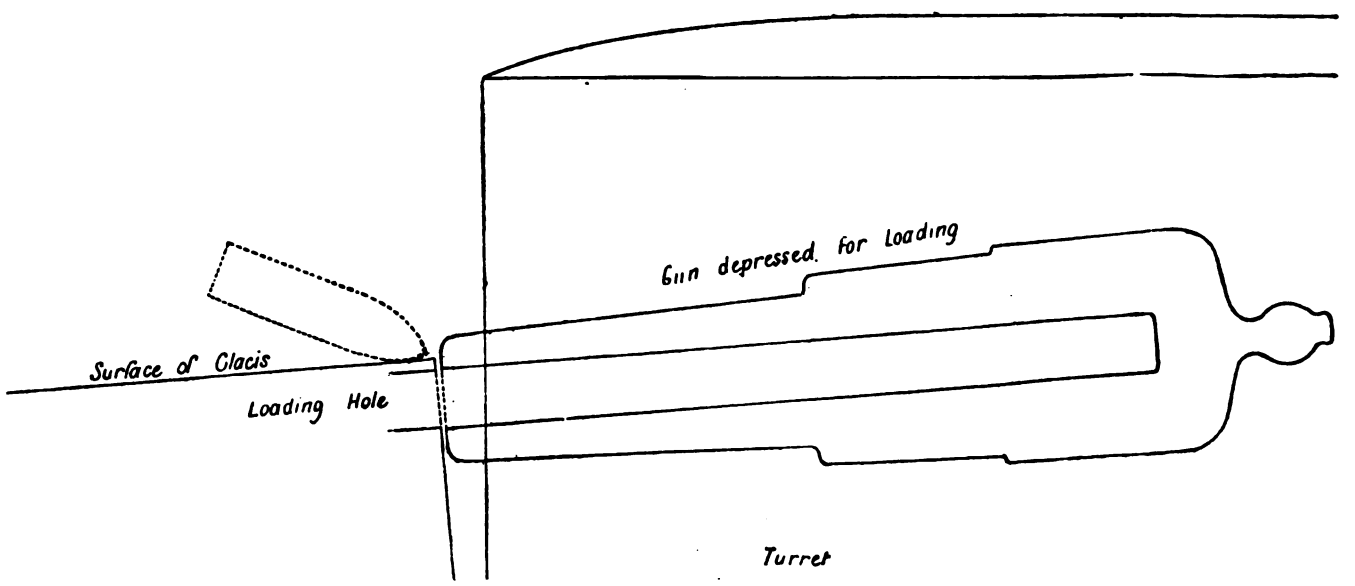


FIG. 2.—Section through Guns, Turrets, and Loading Holes.

I was on the bridge, and observed how deftly and peculiarly he had rolled up the small flags into balls before sending them up, and how quickly they unrolled themselves the moment they received the slight check of the halyards. I asked him if he had been long on board. "No, Sir," he said; "I only had an hour or two's notice before I started for the ship. I had to pack up my traps and say good-bye to my missis pretty sharp. I'm on the coastguard service—a large number of the coastguard had to pack up and start for different ships at short notice. It'll be a little change for me, this cruise; but my missis didn't like my going off so sudden, and she'll be glad to see me back, I reckon, at our quiet little cottage on the coast." I watched, too, the semaphore signalman at work. He was quite an expert at this kind of signalling. He moved the winches that sent the arms up and down, with the

being able to ascertain how much of the hydraulic loading staff was up the bore. The captain of the turret, who had held this conversation with me, told me that in future, no matter how fast the guns were being fired, he would carefully watch the index, and would always pass up the test-rod now in use, to make assurance doubly sure.

There was yet another matter connected with loading the guns that it was necessary to draw attention to, namely, the terrible catastrophe that would happen, should the enormous mass of powder these guns are charged with, explode prematurely through a piece of burning cartridge remaining in the gun by any want of care in sponging, or through neglect of properly cleansing out the guns before they are loaded. The ship's side would be blown out, and nearly every man in the battery would be killed by the inboard explosion. I was informed that so impressed were the officers with the danger, that the engineer had devised a special hose and nozzle for flooding each gun after discharge. I imagine that the water is driven through the nozzle and up the bore by steam pump, in the endeavour to minimize the danger of premature explosion by a piece of ignited cartridge.

The experienced officers on board the *Inflexible* told me that they were of the opinion the 80-ton guns were the best guns in their service—that they were powerful enough for every naval purpose, and that they did not care to have a larger gun. "They were big enough," they said, "for any fighting ship; the 100-ton guns were too unwieldy, and they (the officers) would be quite ready to fight the larger guns with the 80-ton." They approved of them as muzzle-loaders, too. They said they could load and fire them as quickly as the 43-ton guns. I expressed a doubt of this. The relative merits of built-up guns in comparison with solid or semi-solid *steel* guns, most of the officers could not discuss, not being very well up in gun construction. Some of them admitted that the initial strain that is on the guns by the shrunk coils was an element of great weakness, a strain that may be the more easily understood by slipping an india-rubber ring over a ruler. Every particle of a gun should be at perfect rest when not under the action of fired gunpowder. The right sort of gun to have, is that constructed of a cast-steel jacket of a proper quality of metal, compressed while cooling, into which is shut a forged and well hammered or hydraulic compressed stout steel core, on a similar principle to the Palliser guns of cast-iron jacket with wrought-steel core, none of which have ever burst. These excellent guns were cast out, because the Ordnance Department had become unfortunately committed to built-up guns, and had, consequently, laid down all its plant to make these weak natures of cannon. The Ordnance Department is still making guns of built-up steel hoops with a strain on them, at enormous cost to the country, when it is well known that compressed cast-steel guns with a stout wrought-steel core would be safer, and save over 40 per cent. in the cost. The Elswick Ordnance Company is following the same course as the Ordnance Department, and for similar reasons, namely, its identification with the built-up system of which it was the inaugurator, and its non-possession of plant for solid, or semi-solid steel guns such as I have described.

There can be no doubt that breech-loading guns are the best for all naval purposes, but not with the complicated and unsafe breech mechanisms that the experts of the Ordnance Department and Elswick have devised with so much trouble and extra ingenuity. There has been no attempt whatever by the Ordnance Department, to adopt the flanged or any other form of metal cartridges for the heavier natures, as others have done for the smaller kinds of breech-loading cannon. Every tyro in gunnery is now aware that a coned metal cartridge would take the first strain of the exploding powder and greatly ease the body of the gun. Such a cartridge could have a stiff paper or cardboard tube in the centre, throughout its whole length, perforated with holes, and covered outside with thin silk and filled with finer powder than the cube or disc. The R. L. G. would do. By this arrangement the whole of the cube powder would become ignited at once, instead of at its base, to thereby burn unequally and be crushed by the cubes being driven violently against each other through the forward pressure of the gas. This cartridge would, by its construction, completely seal up the gun-chamber. All the danger connected with loading with the present cartridge would be avoided. They would be safe cartridges for storage in the magazine. This form of cartridge would, of course, be claimed by Colonel Hope. That is perhaps the reason why the Ordnance Department will not try it. Another reason may probably be, that the introduction of this form of metal cartridge would upset the breech-closing arrangement which the War Office experts have so unsatisfactorily devised. The introduction of this cartridge would bring about a better and safer breech-loading system, and do away with the obturators and other complicated and unsuccessful appliances for sealing up chambers of the guns.

There is a terrible Nemesis quickly following on this persistence of a false and most expensive system of gun-production. The representatives of the people in Parliament are taking such matters up with a strong hand. For over a quarter of a century the Ordnance Department has decided nearly every question connected with the armament of this country with ruthless ill-judgment. The rule of prejudice, ignorance, self-will against the national interests, and of incapacity, is fast coming to an end. Next session of Parliament will again see the trenches open, the batteries of attack placed, with which

the edge of these apertures, or on the edge, they would instantly collapse—how could you load the guns that come down to be charged with their powder and projectiles?" "Well," was the reply, "if such a thing were to happen, say if one was hit, we should still have three lives, because we have the other loading-holes to bring the guns to, and it is not likely in an action, that all four loading-holes would be struck by shot." "Yes, but if the shot struck on the edge of the loading-hole while a charge of powder was passing along it into the muzzle, how then?" "Well," the Staff-Commander replied, "that would be awkward, certainly." "Very," was my rejoinder, "and if one of your shot was being passed into the gun muzzle when an enemy's projectile came over the quarter and struck on this edge of the loading-aperture, the missile would jam the shot in the hole and in the muzzle, and so stop your turret from revolving until, under fire, you extricated the obstruction from its position; the concussion and the collapse of the loading-hole would also shake your hydraulic arrangements below tremendously?" The Staff-Commander's reply was: "I could not speak positively as to the latter; but I should say that one shot in a thousand would not hit the edges of the loading-holes." "How can you say that, when there are four loading-holes for each turret; two of which can be struck from either quarter by plunging shot?" was my rejoinder. The argument ended with this remark. These holes, especially at the edges, should be covered by at least six or eight inches of steel armour, and I will bet my last dollar that whenever the *Inflexible* next proceeds to engage the enemies of this country, the apertures will be so protected. I have given some rough diagrams showing what I mean, though they may not be absolutely accurate in details of construction.

In my eagerness to enter into questions of gunnery, &c., I have omitted to mention that about 10 A.M. the bugle sounded "To Divisions." The men fell in, on the port and starboard sides of the ship, and the captain presently came out of his cabin and went through his round of inspection, looking minutely over every man's dress and personal appearance, and receiving written reports from various officers. The seamen were paraded facing each other, so that the captain might pass between the ranks. I observed that as the captain came to each division, the command was given "Port Division—hats off." Each man on that side immediately took off his straw hat, brought it to his side, and thus stood until the captain passed through the division ranks. The starboard divisions remained with hats on. This proceeding is one of the customs of the service on Captain's or Admiral's inspections at "Divisions." I spent the rest of the day in watching the numerous steamers and sailing boats that came out crowded with passengers to look at the ships, and in chatting with the officers, not forgetting lunch. Evening approached, and as the launch was going with letters to the post, I bade farewell to the officers whom I had met and conversed with, and went ashore. I cannot sufficiently express my thanks to them all for the great attention and kindness they showed me. I shall never forget it. I went on board a stranger to everyone in the ship. I left it having made the acquaintance of gentlemen whom it was a real pleasure to be with, even for an hour. They enhanced the value of my visit and greatly added to my stock of knowledge of naval matters. Again I thank them, and right well shall I be pleased to meet any of them again. I was not introduced to the gallant captain of the *Inflexible*. I hope to be so, later on. I cannot conclude my impressions of the great naval review of 1887, without a few words of admiration of the fine arrangements for success that were made by the Admiral Sir George Willes. His duties must have been most onerous, and well, indeed, did he carry them through. Her Majesty the Queen could not do other than thank him and the officers under his orders, for the magnificent display of naval power exhibited on the 23rd of July last. I am also glad to have the opportunity of pointing out the excellent work that was accomplished by the Ordnance Store Department at Portsmouth, under my old friends Colonel Pease, Lieut.-Colonel Taylor, and Lieut.-Colonel Pridholm, all of whom, I was informed, worked night and day to equip the fleet with all the necessary stores, gunnery equipment, and combustibles for the illumination. I heard at Portsmouth that their exertions were highly appreciated by the Naval authorities.

Lastly, I ask my readers to pardon all that they may consider to be egotism in my remarks, and to again remember that the narrative has been written in a personal sense.

THE EDITOR.



crossed the river, or the mountains. This is in effect to take advantage of the vulnerability of the assailants, and strike a blow at an opportune moment; failing this, the position selected by the defenders should be naturally a strong one, and, with time and means available, artificially improved, and so chosen that the enemy, supposing him to have surprised the passage, will not dare to pass it, and expose his flank and communications.

In this case the assailants would be forced to attack a carefully-chosen and strongly-entrenched position, with their backs to a defile, and probably only one line of retreat available, either through a mountain gorge, or over a bridge. The last plan often offers the greatest chance of success to a general who can seize his opportunity, and handle his troops with daring and dexterity.

Beyond these few simple principles it is impossible to lay down any fixed rules for opposing a crossing.

Strategical considerations will influence the conduct of both sides to a large extent; but tactical movements within striking distance of an enemy must be planned and carried out on the spot, and will always be decided in favour of the commander who can most readily adapt himself to circumstances, and take advantage of the nature of the ground, the peculiarities of his troops, and the mistakes of his enemy.

A broad and comprehensive knowledge of tactics can alone enable him to act with the confidence which commands success.

Forcing the Passage of a River.

The first thing to be done is to reconnoitre the banks carefully, and push secret reconnaissances over on the enemy's side if possible, to endeavour to discover his dispositions. In order to do this thoroughly the assailants own side must be cleared of the defenders scouts.

Meanwhile the troops should be concentrated at two or more points within a day's forced march of the river, and the most careful and elaborately-planned preparations made to prevent any hitch occurring at the last moment. With this object boats should be procured, rafts constructed, pontoons collected, and the bridges themselves put together, if time permits, to ascertain that they are the required length. The actual crossing-place, or places, will be finally fixed upon by the commander-in-chief, in accordance with the reports he may receive from his engineer and staff officers selected to reconnoitre.

It is seldom that an army can hope to effect a crossing exactly at the most to be desired spot, as the enemy may fustrate it, and for this reason what are called secondary crossing places are most essential, and the preparations for these secondary crossings should, if possible, be as carefully planned as the principal one. If energetically commanded, the defenders will probably be in force to oppose all the most likely crossings.

It can rarely be expected that all the requirements of a good crossing-place will be obtainable. They may be briefly enumerated as follows :—

1. Suitable cover on the enemy's side for the landing and establishment of a covering party of infantry.
2. Command of bank, and suitable ground for guns to be got into position, to protect the crossing of the covering party, and subsequently the protection of the bridge, during it construction.
3. A bend of river towards the assailants, to enable them to direct a convergent fire on the opposite side.
4. An island, or islands.
5. A tributary stream.
6. Good sound ground suitable for embarkation, and disembarkation.
7. Cover on the assailants' side, to conceal the movements and concentration of troops within easy reach of the river.

There are three kinds of bridges—

1. Permanent bridges, entailing a considerable amount of time and labour.
2. Flying bridges, on trestles, only suitable to medium sized rivers, and moderate currents.
3. Pontoons, and bridges of boats.

The latter are the easiest to throw across if a force has got them; but are liable to get out of gear, and also to be swept away.

The principles which govern the tactical operations in all three cases are the same.

All preparations completed as regards material, the first thing to be accomplished is the landing and establishment of a suitable covering party of infantry.

We read in ancient history that the swimming and fording of rivers were among the regular exercises of the Roman legionary. Though immersed up to his chin in water, he was an expert in plying his hatchet against the stakes which opposed his passage, while he held his buckler over his head not less steadily than on dry land. Behind him a constant storm of stones and darts was impelled against the enemy from the engines which always accompanied the Roman armies. The enemy driven from their position, Cæsar established his covering party, and commenced his bridge.

In the absence of boats, or other means of crossing in these days as of old, covering parties may be forced to swim, although the swimming of rivers is not amongst the regular exercises of the army. Substitute guns for engines, and the principles of tactics for the passage of a river are still those which governed Cæsar.

After a covering party has once established itself by driving off the enemy, if he appears to oppose the pas-

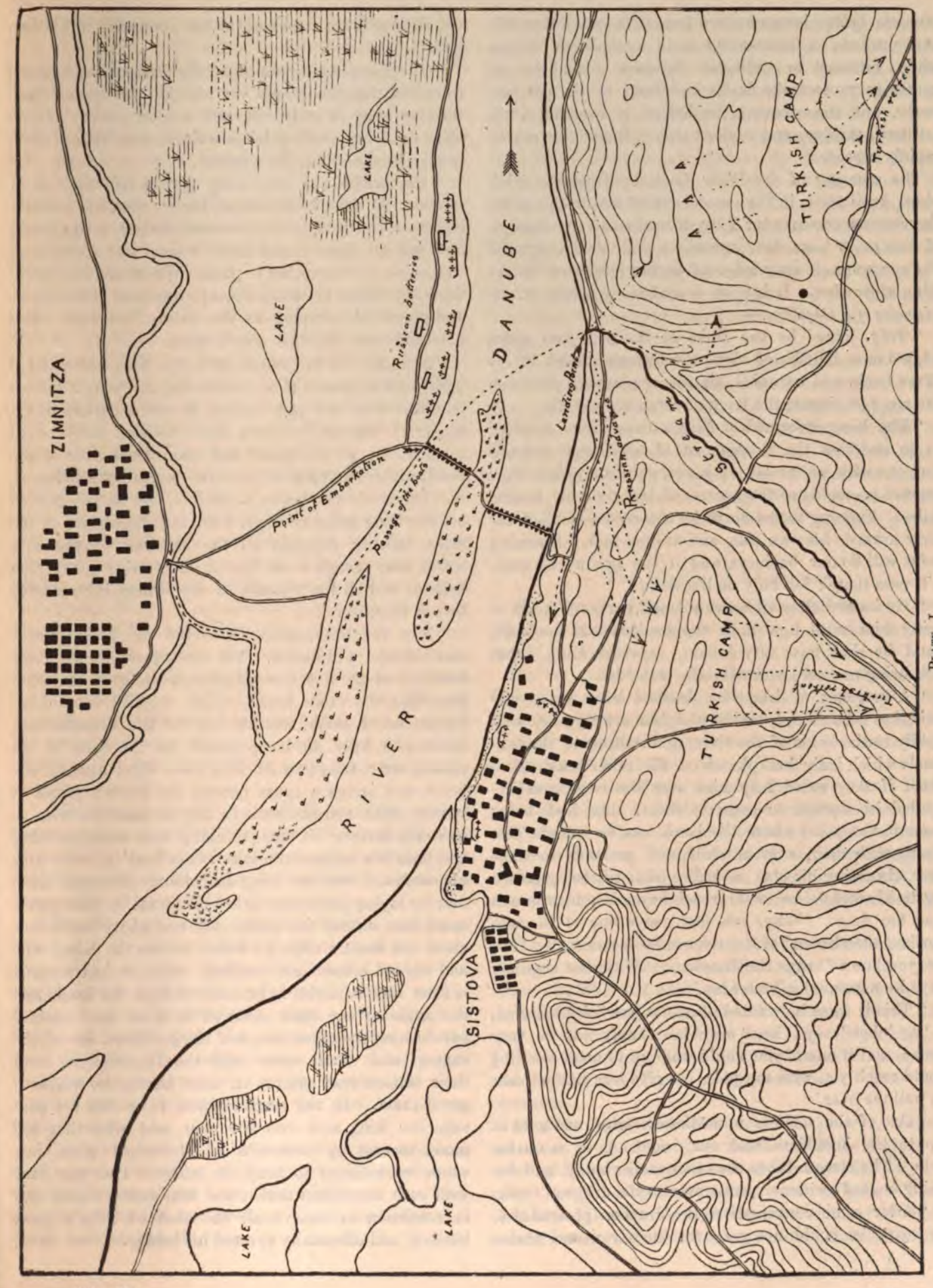

ZIMNITZA
LAKE
Ribbon batteries
DANUBE
Landing Point
Point of Embarkation
Passage of the bridge
RIVER
TURKISH CAMP
Turkish redoubt
Turkish redoubt
TURKISH CAMP
SISTOVA
LAKE
LAKE
LAKE

PLATE I

sage, the bridge is commenced from both ends if possible, and pushed on incessantly until completed. Meanwhile, infantry in sufficient numbers should be got across to protect the flanks and front of the covering party, and the moment the bridge is completed, the artillery, cavalry, and various trains, should be moved rapidly across.

The crossing of the River Leck, by Gustavus Adolphus, April 1631, in the presence of 22,000 troops under the veteran commander Tilly, furnishes a rare example of this most hazardous operation, and also a proof of the consummate knowledge of tactics possessed by the King of Sweden. It is thus described by Defoe, in his *Memoirs of a Cavalier*:—

"Tilly, joined by the Duke of Bavaria, had about 22,000 men distributed along the Bavarian bank of the River Leck, and occupied all the convenient places on the river to dispute the King of Sweden's passage.

"The King, informed of Tilly's dispositions, resolved to go and view the disposition of his troops, and setting out with an escort of horse, gained a height from whence he could see the course of the river for several miles. Turning to the north he observed a bend of the river towards his own side, and at once said, 'There 's a point will do our business, and if the ground be good, I 'll pass there; let Tilly do his worst.'

"He immediately directed a small party of horse to bring him word how high the bank was at the bend, 'and he shall have fifty dollars,' says the King, 'that will bring me word how deep the water is.'

"A sergeant of dragoons obtained leave to go disguised as a boor, and, taking with him a long pole, went boldly to the bank of the river, and calling to the sentinels which Tilly had placed on the other bank, asked them if they could help him over the river, and pretended he wanted to come to them. At last, being come to the point where the bend was, he stands parleying with them a great while, and pretends to wade over, thrusting his pole in before him, till being gotten up to his middle he could reach beyond him, where it was too deep. 'Why, you fool,' says one of the sentinels, 'the channel of the river is 20 feet deep.' 'How do you know?' says the dragoon. 'Why, our engineer says he measured it yesterday.'

"This is what he wanted, but, not yet fully satisfied, "'Ay! but,' says he, 'may be it may not be very broad, and if one of you would wade in to meet me till I could reach you with my pole, I'd give him half a ducat to pull me over.'

"One of the soldiers immediately strips, and goes in up to the shoulders, and our dragoon goes in on his side. The stream takes the other soldier away, and he, being a good swimmer, came over to the dragoon's side.

"After some conversation, the dragoon pretended to be sorry he could not get over the river, and makes off, the Bavarian returning to his comrades on his own side.

"The King having examined the dragoon, understood from him that the ground on his side was higher than the enemy by 10 or 12 feet, and a hard gravel. Hereupon the King resolved to pass there, and himself gives particular directions for a bridge.

"His bridge was only loose planks laid upon large trestles; the trestles were made higher than one another to answer to the river as it became deeper or shallower, and was all framed and fitted before any appearance was made of attempting to pass. When all was ready the King brings his army down to the bank of the river, and plants his cannon, as the enemy had done, some here and some there, to amuse them.

"At night, on the 4th of April, the King commanded 2,000 men to march to the bend, and throw up a trench on either side, and quite round it with a battery of six pieces of cannon on each end, besides three small mounts, one at the point and one at each side of the bend, which had each of them two pieces upon them.

"This work was begun so briskly, and so well carried on, the King firing all night from the other parts of the river, that by daylight all the batteries at the new works were mounted, the trench lined with 2,000 musketeers, and all the utensils of the bridge lay ready to be put together.

"Now the Imperialists discovered the design, but it was too late to hinder it. The musketeers in the great trench, and the five new batteries, made such continual fire, that the other bank, which, as said before, lay 12 feet below them, was too hot for the Imperialists; whereupon Tilly, to be provided for the King at his coming over, falls to work in a wood right against the point, and raises a great battery for twenty pieces of cannon, with a breastwork or line as near the river as he could to cover his men, thinking that when the King had built his bridge, he might easily beat it down with his cannon. But the King had doubly prevented him, first by laying his bridge so low that none of Tilly's shot could hurt it; for the bridge lay not above half a foot above the water's edge, by which means the King, who had showed himself an excellent engineer, had secured it from any batteries to be made within the land, and the angle of the bank secured it from the remoter batteries on the other side, and the continual fire of the cannon and small shot beat the Imperialists from their station just against it, they having no works to cover them. In the second place, to secure his passage, the King sent over 200 men, and after that 200 more, to cast up a ravelin on the other bank, just where he designed to land his bridge. This was done with such expedition that it was done before night, and in condition to receive all the shot of Tilly's great battery, and effectually covered his bridge.

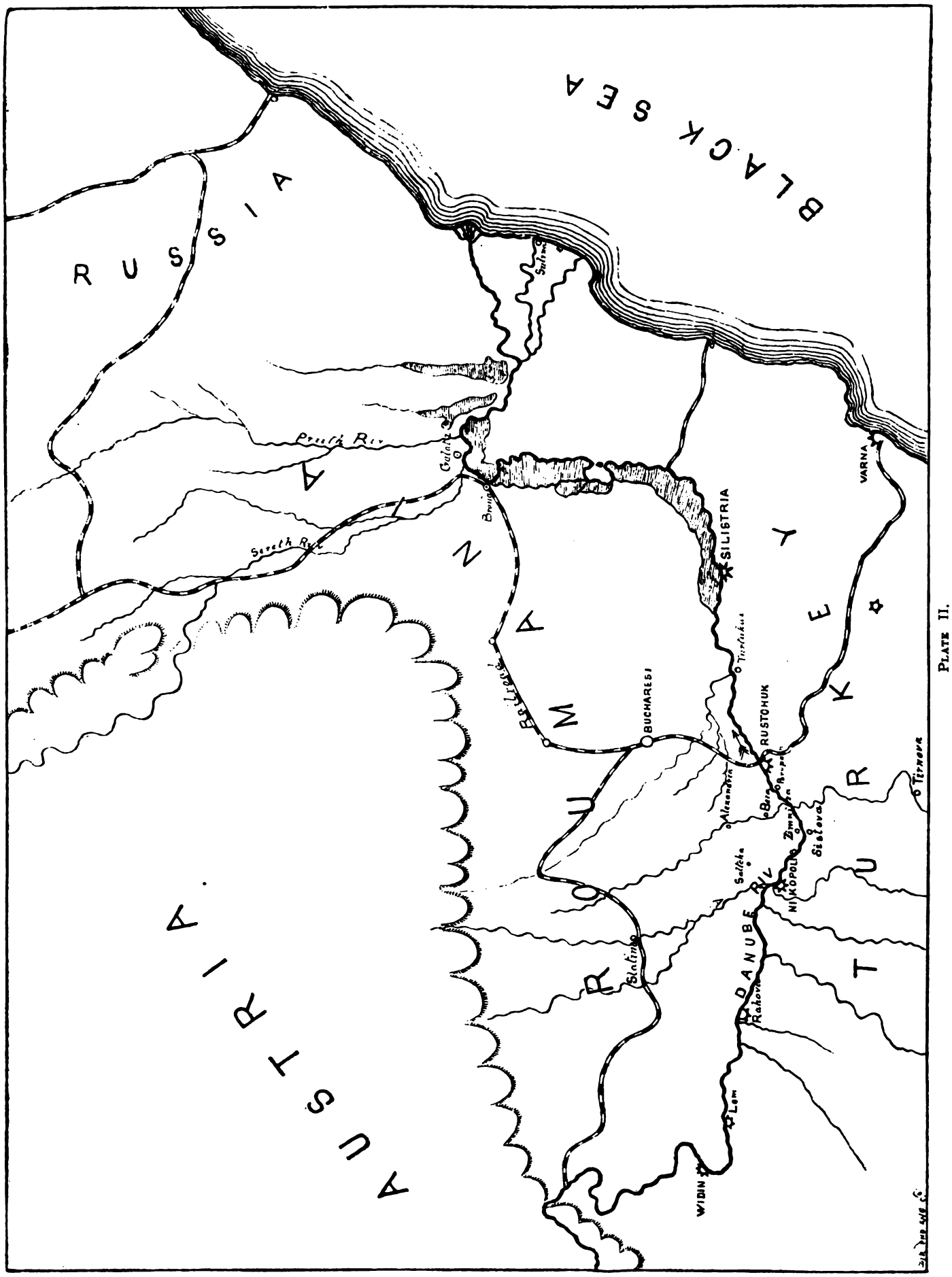

BLACK SEA
RUSSIA
AUSTRIA
HUNGARY
TURKEY
BUCHAREST
RUSTCHUK
SILISTRIA
VARNA
Pruth R.
Sereth R.
DANUBE R.
Galatz
Braila
Giurgevo
Alexandria
Zimnitza
Sistova
Nikopoli
Selitza
Plevna
Lom
Widin
Slatina
Rahova
Tirnova

PLATE II.

Sistova was to be the actual spot where a crossing was to be attempted, directing the IXth Corps at Slatina to co-operate by making a feint at crossing at Nikopolis.

A Division of the 8th Corps with some light guns, and the whole of the pontoon trains and boats was told off to form the covering party.

This division, composed of 15,000 infantry under General Dragomiroff, arrived at Zimnitza on the afternoon of the 26th of June, and, as soon as it was dark, launched their pontoons and boats on the stream at Zimnitza. Meanwhile, during the launching of the boats five batteries were placed in position on the north bank, to the east of an island, behind which was the point of embarkation; these guns were directed to cover the passage of the covering party of infantry destined to land at the mouth of a small stream on the Turkish side, opposite to where the Russian batteries were in position.

This was about the only available landing-place, and was well chosen, as the southern bank completely commands the northern, and a small force might hope to be able to protect itself on the banks of this stream, if attacked, until reinforcements arrived.

The first detachment, 2,500 men, started to row over at 1 A.M. on the morning of the 27th of June, and landed at the mouth of the above-mentioned stream. The Turkish outposts discovered them just as they reached the shore, but too late to prevent their landing. The Turks had in the immediate vicinity two camps, computed at about 5,000 men each, and from the most easterly of these camps they advanced to oppose the covering party, when some severe fighting ensued.

The Russians being steadily reinforced by fresh boatloads of their comrades, after advancing slowly up the stream, by 8 o'clock A.M. secured some heights on its right bank or east side, which protected them from the Turks on that side. Meanwhile, General Dragomiroff was collecting the remainder of his division as it got over, and by 11 A.M. he had about 10,000 men on the west bank of the stream, and ordered a general advance against the Turkish troops occupying the heights directly facing the island, while the troops who had first landed held the ground they had captured, and protected Dragomiroff's left flank during his advance which was also covered by the fire of the guns in position on the north side of the river.

The result was that the Turks were divided and retreated in a south-easterly direction to Tirnova. By 3 o'clock the Russians had established themselves on the heights held by the Turks in the morning. The Russians lost 800 men and 31 officers killed and wounded, of whom the greater portion belonged to the regiment which landed first, and fought its way up the little stream in the morning. By dark the same evening the 2nd Division of the 8th Corps had been ferried across the stream, making in all about 25,000 infantry, under General Radetsky, and the passage was secured. Next day the bridge was commenced which was completed on the 2nd of July, when the army at once marched over.

In this crossing many of the most important principles of river tactics were triumphantly demonstrated.

1. The collection of pontoons for bridging the stream.
2. Concentration of troops at a strategical point equidistant from several likely crossing-places.
3. Secrecy, up to the last moment, as to the actual place of crossing.
4. Careful reconnaissances.
5. Selection of point possessing the following tactical advantages, viz. a tributary stream, which was utilized for conveying the pontoons and boats down to the point of embarkation, the presence of two islands, which covered the movements of the invaders for a considerable portion of their passage, and lessened the labour of constructing the bridge.
6. The selection of a favourable point to land at, in spite of the natural difficulties of the situation, owing to the entire command of the banks being on the Turkish side.

The arrangements for the embarkation of the covering troops, and for the co-operation of the batteries placed in position on the assailants' side of the river, were all very complete, and apparently everything was timed in such a manner as to ensure success.

Although the Turks did not offer a desperate resistance, still the loss incurred by the regiment which was the first to land was very severe in proportion to the number of men engaged (2,500), and at one time the opposition it encountered must have been considerable.

For a detailed account of this interesting passage, the student is again recommended to read *The Russian Army and its Campaigns in Turkey in* 1877–8, F. V. Greene, U.S.

Bridges and Fords.

Unless surprised or turned, to attempt to force the passage of a bridge, or a ford, in the presence of an enemy who still commands the passage with his guns in position, and his infantry entrenched or provided with cover, in these days of improved fire-arms is such a dangerous operation as to be practically almost an impossibility. It is now considered absolutely necessary to subdue the enemy's fire before a bridge or a ford can be attacked by infantry.

Forcing the passage of a river in retreat in presence of an enemy is, perhaps, the most hopeless operation that an army can be called upon to attempt.

H. R. G.

GENERAL BOULANGER:

HIS INFLUENCE ON THE FRENCH ARMY.

By LIEUT.-COLONEL A. L'ESTRANGE.

CHAPTER III.—The Cochin-China Expedition.

RESUMING a consideration of General Boulanger's war services, we find that when sufficiently recovered from the serious wound he received in the Italian Campaign of 1859, he returned to Algeria and rejoined his regiment, but was unable to take duty until January in the following year, when he was sent into Grande Kabylie, and stationed at Fort National, a strong fortress constructed by the French, close to the scene of the battle of Soug-el-Arbâa, described in last month's number. Boulanger was doomed to the monotony of garrison life for eighteen months, but at length deliverance was nigh, for, as troops were wanted for the Cochin-China Expedition, three regiments of Algerian Tirailleurs were called on to volunteer, and, as in the Italian Campaign, double the number came forward. Boulanger's regiment furnished two companies, and it is needless to say that he was chosen to accompany them.

Leaving Blidah the 16th September 1861, the African contingent embarked, the 15th October, on board the *Canada*, an old paddle-wheeled frigate, ill fitted for the transport of troops. Their route was by Alexandria, thence by small steamers up to Cairo, an overflow of the Nile having washed away the railway. At Suez the *Jura* was ready to receive them, and they left the 12th November, destined to have a long, weary, and dangerous passage. Touching at Point de Galle, the French officers were entertained at mess by the old 50th (Queen's Own) Regiment, and the cordial reception and magnificent hospitality they received from the English officers made a deep impression on the French. The incident, trivial though it be, is recorded by General Boulanger's biographer, who states that the compliment was returned on board the *Jura*, and, during a few days stay, picnics and exploration parties were got up in the island, when Boulanger was in great request, for, owing to his knowledge of English, he was made interpreter and spokesman.

After four and a half months voyage the *Jura* anchored off Saignon, and the African troops disembarked. An expedition was then immediately organized against Winh-Luong, which is separated from Saignon by the Cambage; and Boulanger on board gun-boat "12," commanded by Lieutenant Vergue, went up to Vaico to operate against Tayninh. The country around was infested by pirates, who made daily raids upon the French, resulting in loss of life and stores. Boulanger and his party were landed to give an account of these marauding bands, and, after eight days' march through swamps and morasses, he surprised their chief, and, after an obstinate fight, the Annamite robbers fled to



The Anamite Prime Minister.

their junks, and escaped. This first engagement impressed the pirates with a wholesome respect for the warlike qualities of the Turkos, and in the fight Boulanger received a lance wound in the thigh. In rapid succession Winh-Luong, Miconï and Caïbe were taken, and the country was purged of the bands which devastated the districts. In all these engagements Boulanger took part. Campaigning was conducted under extreme

difficulties and trying circumstances. Fever, fatigue, and dysentery played havoc with the Turkos, and it was not without pleasure after their well-earned labours that they at length found comfortable quarters at Cholen, a rich town in the environs of Saignon. There, in July 1862 Lieutenant Boulanger was promoted to the rank of captain.

Although a treaty was signed between France and Annam in July 1862, it did not put an end to fighting in French Cochin-China. A formidable Annamite leader, on the conclusion of peace, placed himself at the head of all who volunteered to join his standard, and took up a position in the marshes of Cambogia. Saignon and Cholen were threatened, and the necessity became obvious of reducing Quan-Dinh and his forces to subjection. In the beginning of 1863 the projected operations were undertaken. Pietri's column led the way, in which were included the two companies of the 1st Algerian Tirailleurs under Captain Boulanger. On the 13th February the advance began, and when the rebels were found, they declined to fight in the plain, and fell back on the fortress of Winh-Toï. This was attacked next day. The French troops gained the fort, advancing under cover of their artillery-fire, and the assault was entrusted to Captain Boulanger. The walls were scaled, and the garrison, having fired the town, fled. Quan-Dinh escaped, owing to the dense mass of smoke which obscured the line of retreat of himself and his followers.

Shortly after the capture of Winh-Toi Captain Boulanger was stricken with a serious form of marsh-fever which nearly proved fatal, the blood-poisoning having acted on, and caused a re-opening of, his old wound received in Italy. Owing to a strong constitution, and the careful nursing of an old comrade in arms, he recovered, and, the expedition having come to an end, the Turko contingent left Cochin-China, and reached Algiers the 12th July 1864.

Of 300 men who started in Boulanger's double company in 1861 only 70 returned.

CHAPTER IV.—The Franco-Prussian War.

Hitherto we have followed the career of General Boulanger as a company officer. He matriculated in a rugged school of warfare, and his campaigns in Kabylie and Cochin-China were beset with difficulties which seldom fall to the lot of modern troops. His personal bravery, his wounds and distinguished services, attracted the attention of his superior officers, and he was noted for promotion when opportunity offered. On his return from Cochin-China he spent two years in garrison duty in Algeria, and although the rest was imperatively necessary to recruit his strength, the monotony involved was crushing to one of his spirit, and love of adventure and activity. During this time, however, he gave proofs of the great technical knowledge he possessed of his profession, while he was most favourably reported upon for the attention he bestowed on all the minor details of military routine. His advance was assured, and he so distinguished himself that he was appointed commandant of a company at the École Militaire.

The Captain Instructors of St. Cyr are always chosen and appointed by the French Minister of War. The importance of their functions is fully recognized. To a great extent the future of the Army depends on their aptitude for instruction, their knowledge of military matters, and their powers of enforcing discipline. It is in the early days of tuition that the pupils must be inoculated with those principles of self-restraint and obedience to command which form the solid groundwork for unhesitatingly accepting orders and carrying out commands, whether rightly or wrongly issued.

Captain Boulanger acted as Instructor at St. Cyr from 1867 to 1870. In those days the cadets consisted of eight companies. For administrative purposes these were formed into four double companies, each under a Captain-Instructor, assisted by two lieutenants. The seventh and eighth (or 4th double) company was under Boulanger's command, and it is recorded that while he proved an extra strict disciplinarian at St. Cyr, he was probably the most popular officer among his pupils and confrères. He was noted for his great precision in dress and uniform, carrying out Viscount Wolseley's dictum, that a soldier should be proud of the royal livery he wears; and while "hail fellow well met" with all with whom he came in contact, no dereliction of duty was ever passed over by him. In the words of his biographer: "La moindre négligence, le plus léger oubli de l'instructeur, des guides, des élèves dans le rang étaient réprimés immédiatement avec une implacable sévérité. Les meilleurs, les plus attentifs ne s'en tiraient pas dans l'année à moins d'un nombre respectable de jours de consigne." The cadets, however, probably on account of their superior intelligence, conformed to and appreciated the firmness of their captain. It is noteworthy that Captain Boulanger's ambition while he held his responsible post at St. Cyr was to have one of his double company appear at the head of the list on examination at the final classification. In this laudable endeavour he was always rewarded. "No. 1," without exception, came in the class list from Captain Boulanger's command, while he often ran a good second and third with "his field." At all regimental duties he never failed to be personally present, and he gave a great impetus to gymnastic exercises, having organized in this direction—outside the school curriculum—a special class of volunteers, who attended on Sunday *de bon gré*, when the day was practically a holiday.

Captain Boulanger while at St. Cyr was an arduous and painstaking officer. As M. Barbou says, he was "Instructeur lors ligne." With his great love of work he communicated the spirit of it to his pupils and made them all eager to surpass each other. He had the rare gift of handicapping, so to speak, the powers and energies of the cadets under him. Those of undoubted abilities were quickly advanced, but not necessarily at the expense of the rest, who, in racing parlance, "could not live the pace." The latter he encouraged and stimulated by kind words and friendly advice, and often a seeming dullard took heart by the kind counsel given, and developed into a brilliant officer.

From the above brief sketch it would appear that General Boulanger was distinguished as much in the lecture-room as in the field. This fact granted, he may be credited with military genius not often associated with one commander.

The eventful year 1870 came, and while the St. Cyriens on a hot summer's afternoon were going through their drill, General Cissey came on the parade-ground and cried "Halt!" He announced that war between France and Germany had been declared, and that all the units composing the eight companies of cadets in the barrack-yard were made sub-lieutenants. Before leaving the École Militare he informed Captain Boulanger that he was appointed Chef de Bataillon of the 28th de Ligne, then quartered at Nantes. So ended General Boulanger's connection with St. Cyr. Having joined there as a youth he was promoted before the expiration of his academical time on the conclusion of the Crimean War, and when Captain-Instructor he, on account of the outbreak of the Franco-German war, suddenly found himself advanced to the great honour of commanding a distinguished Line Regiment.

It would be beyond the limits of our space to follow all the incidents relating to General Boulanger in the Franco-German war. Suffice it to say he was transferred to 114th de Ligne under General Farron, and in that disastrous campaign was first engaged at the battle of Champigny. The "Grande Sortie" of the Army of Paris was arranged to have been essayed on the 29th of November. It was to have consisted of a combined attack on the parts of Generals Vinoy and Ducrot. Vinoy had to deal with the southern section. He was to issue forth from Vitry and Villejuif and fight his way up the Valley of the Seine, while Ducrot had the valley of the Marne for the theatre of his offensive operations. Thus the Grande Sortie was to have been due south and south-east of Paris. The combination failed in consequence of a characteristic miscalculation—a want of foresight as to the length of pontooning required for bridging the Marne, swollen as that stream was.

Vinoy's effort of the 29th November against the 6th Army Corps utterly failed, and it fell to Ducrot to make his attempt the day after, unassisted by the distraction which the former, according to the plan of action, was meant to afford. The French, tardy as their movements were in losing the whole of the 29th, succeeded to a great extent in surprising the Würtembergers and Saxons in their day-break attack on the 30th November. Brie was soon in the hands of the French, when they spread out like a fan, their left threatening Noisy, their centre looking straight at Villiers, their right, in great strength, being already in possession of Champigny. They hurled the Würtembergers back on that village with a rush, while, at the same time, they had taken it in flank on the south side; and, although there was some desparate fighting on the part of the South Germans to hold the place, yet they were utterly overpowered and driven back by sheer dint of superior weight. Villiers was not so easily gained by the French.



General De Cissy

A Würtemberger battery posted at the corner of the park in the village, supported by the strenuous efforts of the infantry, far inferior in numbers to their opponents, succeeded for long in staving off the rush of the French. It suffered severely from the fire of Nogent, and ultimately the German infantry had to retire, while the gunners stood their ground with admirable persistence. The French were no less obstinate in their assault, and the rare spectacle was presented of a single unsupported battery firing at a strong advancing

to take the initiative on that day. During the first half of it a kind of informal armistice existed for the purpose of removing the wounded and burying the dead — a task which neither side performed with the thoroughness which was desirable. The French utilized the tranquillity by digging potatoes on the blood-stained battle-field, and in stripping the flesh off the carcasses of killed horses which strewed its surface.

Boulanger's share in the engagements on 30th November and 2nd December is thus described by General Ducrot in his well known work *La Defense de Paris* :—

"His regiment (114me de Ligne) was composed for the most part of recruits, who went under fire for the first time. Bravery was general, but it may be said that Boulanger's men would have died to the last man on the command of their colonel, who not only set them a brilliant example but knew how to inspire within them not only confidence but esteem.

"Colonel Boulanger, on the morning of the 30th November, placed himself at the head of his regiment, on foot. Certain to be followed, he only stopped to encourage with a reassuring word (often with a joke) those who were fighting by his side. After the attack in the morning, when Champigny was wrested from the Germans, the French troops followed them in their retreat, but in turn were compelled to fall back and reoccupy the town. A second advance was decided upon in the afternoon, and in the attack Colonel Boulanger received a severe gun-shot wound in the shoulder. Notwithstanding the pain he suffered, he remained to the end on the field; and, the fighting over, he superintended the formation of the camp, personally inspected the outposts, and refused to have his wound dressed until night. The following day was spent in preparing for a further attack, in reorganizing our artillery and *matériel*, and in bringing up supplies of ammunition and provisions. On the morning of the 2nd December we were ready, but the enemy had been as active as ourselves, and we were destined to pay dearly for our lack of vigilance. On the right wing the defence of Champigny was entrusted to General Farron's division. The advanced guards were furnished by two battalions of the 42me de Ligne, which occupied the three parks outside the village, and one battalion of the 113me, which was posted to dispute the plain between them and the river."



Post of Observation at Champigny.

The eventful morning of the 2nd December arrived. Unfortunately, those on outpost duty arrived at their stations at nightfall, and had not an exact perception of the ground they had to watch and cover. The clumps of trees to the north and east of Parc-en-Pointe, as well as the wood situated between the two roads of Chennevières had not been sufficiently searched, and although before light the advanced posts at La Plâtriere distinctly heard movements in the neighbouring woods, the fact was disregarded. As day began to break the French even saw troops penetrating into the brushwood. pickets on the Côte d'Or side, completely surprised by the sudden irruption of the enemy, are doubled back in disorder, throwing into confusion the companies advancing to their relief. *En se sauvant les mobiles renversent le campement du* 114ᵉ, *jetant bas les tentes.* Colonel Boulanger is up at once, and in an instant his men are under arms and advance at the double. Arrived at the outskirts of Champigny his regiment clears the village, and, driving out the Prussians, occupy the houses. The first moments of confusion over we hold our ground, and in an hour after obtain a signal advantage. In a



GENERAL FORGEMOT AND HIS STAFF.

They had been informed that at early morning the copses would be put into a state of defence, and concluded that the groups seen were their own working parties. The error was soon detected. The supposed workmen were the skirmishers of the enemy advancing on them in three strong columns. General Ducrot continues:

"Suddenly a whistle is heard. Shouting succeeds and a murderous fire is opened upon our men, while it rains shells from all parts. From La Plâtriere to the Marne we are enveloped by a cloud of skirmishers. The word, from Bry to Champigny the victory is ours. That day cost the Germans 60 officers, and upwards of 1,100 men. On our side we lost 28 officers and 1,000 men."

Of this number Boulanger's regiment lost 7 officers killed and 18 wounded, and 35 non-commissioned officers and men killed and 325 wounded, while 154 were not accounted for, probably taken prisoners.

The success of the 2nd December, says M. Barbou, was more marked and more real than that of the 30th November. The French slept on the field of battle, although they had lost Villiers and Cœnilly, keys of the

position. General Ducrot, as he has himself stated, did not think fit to call on his brave and hardly-worked troops for another effort, for they had been for five days and five nights marching, fighting, and bivouacing on the frozen ground, without blankets and without fires.

The retreat began the following day. A dense fog favoured the movement, which was effected without difficulty, in perfect order and without any attempt at interference on the part of the enemy.

Having recrossed the Marne, the 114th regiment was sent to St. Maur camp, where Colonel Boulanger reconstructed his attenuated cadre, devoting to the task all his energy and habitual activity. In a short time his newly acquired drafts were actuated with true soldierly spirit, and the 114th was once again fit and ready to take the field. His services were recognized and Colonel Boulanger received the Officer's Cross of the Legion of Honour.

On the 21st December his regiment left St. Maur for Bobigny, an advanced post north-east of Paris. Men and officers were without tents or shelter of any kind. They slept on the snow, and underwent frightful fatigue and sufferings. The cold at night was so intense that the officers had to rouse the men every half hour, and double them to and fro to prevent them being frost-bitten. Always with his men Colonel Boulanger set the example of resignation to duty, while his great animal spirits never forsook him. Frequently during the day he visited the outposts at 150m. from the enemy. When the Germans fired at him, as they often did, he would mount the embankment, and if remonstrated with for gratuitously exposing himself to danger he replied, "Bah! ils sont trop maladroits pour nous attraper."

It is worthy of note that, the severity of the weather notwithstanding, and the privations which his regiment endured, Colonel Boulanger never relaxed in discipline, "Le 114e devant l'ennemie aux avant postes en Decembre 1870 était astiqué, brossé, ciré et manœuvrait comme en temps de paix."

The capitulation of Paris effected, Lieut.-Colonel Boulanger was promoted to Colonel's rank, and appointed to the 133e regiment at the age of thirty-five. For over five years he commanded this corps, gaining, as his wont was, the esteem and affection of all ranks, while he turned out his command one of the smartest and most efficient infantry regiments in the French Service.

(To be continued.)

JUBILEE ODE.

FIFTY summers past and over,
Fifty winters gone and fled:
All in all to countless millions
Of the living and the dead.

Fifty years of human progress,
Fifty years of victory won
Over nature, man, and matter,
Now their brilliant course have run.

Thou hast seen what mortal ruler
Ne'er hast seen since time began,
Thou hast reigned to see the wonders
Worked by toiling, thinking man!

Thou hast seen the latent powers
Science hath revealed to view,
Made to serve us feeble mortals,
Put to uses strange and new.

Thou hast seen the earth begirdled,
Iron bands the circuits form;
Thou hast seen the ocean conquered;
Science now defies the storm.

Thou hast seen a realm delivered
From tyrannic despots' sway,
'Stead of murder, war, and famine,
Peace and plenty reign to-day.

Thou hast seen the birth of nations;
British nations o'er the sea,
Mighty nations of the future
Born and fostered under thee.

Thou hast seen the nation's riches
Doubled o'er and o'er again;
Thou hast seen thy children foremost
In the strife of honest gain.

Thou hast seen thy sons upholding
British glory far and near,
Thou hast seen them falling, dying
For the land they loved so dear.

Thine hath been an age of wonders,
None doth show an empty hand;
Men of letters, war, and science
Conqu'rers all around thee stand.

Many are the great departed
Lights amid a starry sky,
Many loved ones ne'er forgotten
Cause us oft a bursting sigh.

British nations e'er united,
"Forward" let our motto be,
All who speak the English language
All in every land and sea.

Fifty years are past and over
Since thy light began to shine;
Millions call thee Queen and Mother,
Millions bless thy reign benign.

Millions now invoking heaven
Pray for Britain—pray for thee—
Bless our Queen, and bless our nation
In this year of Jubilee.

C. J. B. H. DRESSNER,
Lieut., Bengal Staff Corps.

AT THE PLAY.

At the Adelphi the "Harbour Lights" have at last gone out, after shining uninterruptedly for a good deal more than a year, and have been succeeded by "The Bells of Haslemere," which bid fair to sound in our ears for as long a time. The new play, by Messrs. Pettitt and Grundy, is, of course, a melodrama of the type firmly implanted at this theatre, and, as is inevitable, we meet with a good many old friends in the characters, and a good many familiar turns in the plot. There is, however, much freshness in the scenes, which are laid in the United States, and which also give good scope to the scene-painter, Mr. Bruce Smith, who has taken advantage of his opportunities to give us some admirable bits of painting, besides several elaborately set scenes. The hero's escape from the enraged planters, who want to lynch him for his supposed attempt to cheat them with forged notes, and his wanderings in a swamp, are well managed and picturesque.

Mr. W. Terriss, of course, appears as the said hero, Frank Beresford, and does it as well as such a part admits of being done; but those who have seen him in "Romeo," and other Shakesperian parts, cannot but regret that he should have descended to the plaudits of an Adelphi gallery, and to the utterance of clap-trap speeches, and should show every sign of continuing to devote himself thereto. Mr. Charles Cartwright's Vere is a very effective bit of quiet "villain" acting. Miss Millward looks charming, and acts prettily as the heroine blacksmith's daughter, and Miss Forsyth deserves special mention as Norah Desmond. The comic parts are entrusted to Mr. Garden, and Miss Clara Jecks, and are supported, it is hardly necessary to say, with much spirit.

The Avenue is at present occupied with the performances of a troupe of intelligent horses—to whom the name of "Equirationals" has been given—belonging to Professor E. K. Crocker, and introduced under the management of Mr. W. W. Kelly. Morning performances are given three times a week, and will doubtless prove attractive, even at this dull season.

The Strand has been made available for a short time to reproduce the adaptation of Mr. Rider Haggard's "Dawn," lately produced at a *matinée* under the name of "Devil Caresfoot," with the same performers as in the original experiment. The play is arranged by Messrs. Chambers and Little—it appears that the task of writing a play, even when adapted from a story, is too much now-a-days for any single man—who have given the actors some good opportunities, but cannot be said to have triumphed over the usual difficulties of an "adaptation," having produced rather a collection of incidents than a compact play. Several of the scenes, however, taken separately, are effective, and the acting on the whole is good. Miss Janet Achurch, who has only lately come forward on the London stage, shows much promise, and distinguishes herself in the part of Angela, into which she throws herself very earnestly; while Mr. Charles Charrington, in the title *rôle*, gives a particularly clever rendering of an unusual, odious character. Miss Carlotta Addison always does thoroughly whatever she undertakes, and gives all the point of which it is susceptible to the part of Lady Bellamy, an adventuress of a somewhat commonplace type.

The Gaiety has also had a short season for the production of the poetical drama of "Loyal Love," by the lady who writes under the name of "Ross Neil," in which Mrs. Brown Potter has chosen to make her third appearance before the London public. As the heroine Doña Inez the actress showed more power than she has yet displayed, and some improvement in those stage technicalities for which she has been criticised. It cannot be said, however, that the unfortunate accent by which she is handicapped is much softened, and she would do well to turn her attention specially to this point. Mr. Kyrle Bellew makes a picturesque Don Pedro, and Mr. Willard returns to comparatively familiar lines as the villain Gonzales, while Mr. Ward showed some dignity as the King.

The play itself cannot be considered more than moderately successful from a dramatic point of view, and the climax is greatly weakened by the resuscitation of Inez after she is supposed to have succumbed to poison; but there are many good lines, and much literary merit in the writing, though with a superabundance of tropes, similes, and figures, which proved somewhat cloying.

The Criterion, after the successful reproduction of an old favourite in "David Garrick," has now brought out a still older favourite—if age and favour are to be gauged by the length of runs—in "Our Boys," and apparently with as much satisfaction to the audience as ever.

Mr. David James resumes his *rôle* of the butterman, and provokes as much laughter as ever by his well-known impersonation, but otherwise the cast does not include any of the original performers. Mr. W. Farren is much missed as the baronet, and Mr. Thorne as his son, while Miss Vining's Belinda cannot hold a candle to Miss Cicely Richards' excellent representation, a performance that stands alone in its own line.

Pieces which have run for some time.

Comedy.—"The Colonel," comedy. Mr. Edgar Bruce, Mr. W. Herbert, Mr. Bassett Roe, Miss Violet Melnotte, &c., and a farce.

Covent Garden.—Mr. Freeman Thomas' Promenade Concerts. Conductor Mr. A. Gwyllym Crowe.

Globe.—"The Doctor," farcical comedy. Mr. W. S. Penley, Mr. W. J. Hill, Mr. H. Kemble, Mr. Stewart Dawson, Miss Vane Featherston, Miss M. A. Victor, Miss Cissy Grahame, Miss F. Enson, &c., and "Barbara."

Her Majesty's.—Promenade Concerts. Conductor, Signor Arditi.

Prince of Wales'.—"Dorothy," comic opera. Mr. Ben Davies, Mr. Furneaux Cook, Mr. Arthur Williams, Miss Marie Tempest, Miss Florence Dysart, &c., and "Jubilation."

Princess'.—Shadows of a Great City," melodrama. Mr. Barnes, Mr. Parker, Mr. Harry Nicholls, Miss Cicely Richards, Miss M. Rorke, &c.

Savoy.—"Ruddigore," comic opera. Mr. G. Grossmith, Mr. R. Temple, Mr. D. Lely, Miss Jessie Bond, Miss R. Brandram, &c., and "The Carp."

Vaudeville.—"Held by the Enemy," melodrama. Mr. Chas. Warner, Mr. Yorke Stephens, Mr. Fred Thorne, Mrs. Canninge, Miss Annie Hughes, and Miss Kate Rorke.

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THE MOST EXALTED ORDER OF THE STAR OF INDIA.

RATHER more than a quarter of a century has passed since England was awakened from the slumber of security with the appalling news that her Empire in India was in jeopardy. At the time the import of the news, although it occasioned considerable alarm, was barely realised. It might have been a mere *émeute*, but it *was* the rising of the entire native army. So leave was cancelled, the renewal of furlough was refused, and every available officer hurried himself off to the sunny shores of the East, to fight for Queen and country; some to rise to distinction, others to leave behind the memories of heroic deeds and illustrious actions, while their own bodies lay scarcely buried on the plains where they had dared and done all that man could do.

Those were, indeed, grand days. Often have England's sons performed acts of valour and might; oft have her children braved overwhelming odds and ventured against foes outnumbering them by thousands and thousands, but never before, in the annals of Britain's kingdom, did a mere handful of our fellow countrymen stem the tide of a whole Empire in rebellion. Men, women—aye, even children—lent their aid to defend the flag which, for a thousand years, has "braved the battle and the breeze," and three months had barely elapsed ere the banner of victory once again graced the citadels of India; the sword was placed in the scabbard, and the hand of peace and plenty showered bounties upon the land which had flowed with the blood of as stout-hearted warriors as ever fought in defence of hearth and home.

It was right, it was inevitable, that such mighty deeds, such undying courage, such a glorious campaign should find adequate recognition at the hands of a Sovereign whose servants had left an imperishable monument of greatness upon the pages of Time; but the reign of Honour had barely commenced, the Bath was the only Order adapted for such services, and it became necessary to create a new source of distinction. Accordingly, on the 23rd February 1861, the "Most Exalted Order of the Star of India" was founded, with the view "of affording to the princes, chiefs, and people of Our Indian Empire"—such were the Queen's words—"a public and signal testimony of Our regard," of commemorating the Queen's "resolution to take upon herself the Government of the Territories in India," and of rewarding "conspicuous merit and loyalty."

The Order consisted of the Sovereign, a Grand Master, and twenty-five Ordinary Knights (K.S.I.), in addition to (1) such extra knights as the Sovereign might think fit to appoint, consisting of Princes of the Blood Royal, being descendants of His late Majesty King George the First, and (2) Honorary Knights in the persons of Foreign Princes, or persons upon whom the Sovereign might "think fit to confer the honour of being received into the same," the number being "limited in such manner as, by any statute, We, our heirs and successors, shall think fit to direct."

The somewhat elastic phrase, "Foreign Princes," has always been considered to mean independent Sovereigns owing no fealty to the Queen, while Indian Princes have been included amongst the ordinary members.

The Queen, her heirs and successors, Kings and Queens Regnant of the United Kingdom, were Sovereigns of the Order, while the Viceroy and Governor-General of India for the time being was Grand Master, and, as such, first and principal Knight; but on retirement he had to vacate the Grand Mastership of the Order, and revert to the position of an Ordinary Knight, remaining "Extra" until such time as a vacancy should occur, when he became absorbed, and took rank according to

the date of his having been sworn in as Viceroy or Governor-General of India.

Of the twenty five Ordinary Knights, fifteen were such native Princes and Chiefs of India as had entitled themselves to royal favour, while the remaining ten were such British subjects as had, by important and loyal services rendered to the Empire in India, merited royal favour.

The Viceroy was also empowered to invest and confer the degree of Knight Bachelor of the Realm upon any person nominated to be a Knight of the Order, who might happen to be in India at the time. But the Sovereign might, under a Sign Manual, countersigned by one of the Principal Secretaries of State, dispense with investiture.

As regards Insignia the following was the original ordinance :—

At investitures and all great and solemn occasions, as appointed by authority, knights wore mantles of light blue satin, lined with white silk, fastened with a blue cordon of white silk, having two blue silk and silver tassels attached thereto, on the left side of which mantle was embroidered a representation of the star of the Order, composed of rays of gold issuing from a centre, having thereon a star of five points in diamonds, resting upon a light blue enamelled circular riband, tied at the ends, inscribed with the motto of the Order, "Heaven's light our Guide," also in diamonds. This star was to be worn upon the left side of the coats or outer garments. Further, on all investitures of the Order, as well as on all days usually termed "Collar days," and on the 1st of November in each year, being the anniversary of the Queen's proclamation to her Indian subjects, a collar of gold was worn, composed alternately of the lotus flower, of palm branches in saltire tied together by a riband, and of the united white and red rose; in the centre of the said collar was the Imperial crown; the whole enamelled in their proper colours, and linked together by chains of gold; to the said crown there hung the badge of the Order, consisting of an onyx cameo, having the royal effigy thereon, with a perforated ornamental oval containing the motto of the Order in diamonds, surmounted by a star of five points, also in diamonds. On all occasions other than Collar days, the knights wore a badge, suspended to a light blue riband, four inches wide, with a narrow white stripe towards either edge, passing from the right shoulder to the left side. The insignia were returnable on death.

Knights were permitted to wear supporters to their arms, and to surround their armorial bearings with the circle and motto of the Order, and with a representation of the collar with the badge suspended thereto.

The seal of the Order was Azure, a star of five points, Argent, impaled with the Royal arms, and with the circumscription, "The Seal of the Most Exalted Order of the Star of India."

The Secretary of the Order, who must be resident in India wore a mantle of white satin, lined with blue silk, and tied with a cordon of blue silk, with two tassels of blue and white silk attached thereto, having on the right shoulder an escutcheon blue charged with a star of five points white, and around his neck, pendant to a chain of gold, an enamelled badge representing two ferns in saltire gold, surmounted by a star of five points white, within a light blue circle, inscribed with the motto of the Order, and surmounted by an Imperial crown.

The Registrar, who, on the other hand, resides in England, was habited in a mantle similar to that worn by the Secretary, and wore round his neck, pendant to a chain of gold, an enamelled badge, representing a book bound in blue, the leaves and ornaments being gold; in the centre a star of five points white, the whole within a light blue circle, inscribed with the motto of the Order, and surmounted by an Imperial crown.

The first appointments were Earl Canning, Grand Master; H.H. the Nizam of Hyderabad, Field-Marshal Viscount Gough, H.H. Maharajah Scindiah, Lord Harris, H.H. Maharajah Dhulip Singh, Field-Marshal Lord Clyde, H.H. the Maharajah of Kashmir, Sir George R. Clerk, H.H. the Maharajah Holkar, H.H. the Gaekwar of Baroda, Lord Lawrence, H.H. the Maharajah of Patiala, Sir James Outram, H.H. the Sekunder Begum of Bhopal, Lord Strathnairn, H.H the Nawab of Rampur, H.R.H. the Prince Consort, H.R.H. the Prince of Wales.

The first Secretary was Colonel H. M. Durand, C.B., the Secretary to the Government of India in the Foreign Department, and as a matter of custom the two appointments have always been combined. Sir Albert W. Woods, Garter Principal King of Arms, was selected by the Queen to be the Registrar, and has held the office continuously, up to the present date, the various changes in and the constitution of the Order not having affected the position in question.

In 1866 the Order was enlarged, and thenceforth consisted of the Sovereign, the Grand Master, and three classes of recipients. The first class, Knights Grand Commanders, G.C.S.I., which comprised amongst others such of the original members as were then alive, was limited to fifteen Natives and ten Europeans, the qualifications being the same as in force at the time the change was made; the arrangement also in regard to "Honorary" and "Extra" Knights remained as before.

The second class, designated Knights Commanders (K.C.S.I.) was limited to fifty; and the third class, or Companions (C.S.I.), which does not convey knighthood, to 100 members, and it was declared that persons could

not be eligible unless by their conduct or services in the Indian Empire they had merited Royal favour.

It was also decreed that the Order should take precedence after the "Bath," and before "St. Michael and St. George."

As regards Insignia, the ordinance passed in 1861 became applicable to the first class only of the extended Order (G.C.S.I.). Members of the Second Class (K.C.S.I.) have to wear around their necks a riband of the same colour and pattern as that of the Knights Grand Commanders, but of the breadth of two inches, and pendant thereto a badge smaller in size than that appointed for the First Class, the onyx cameo being with a gold ornamented oval, and the star made of silver. Similarly, the star to be worn on the left side of the coat is made of silver instead of gold. The badge of the Companions is again still smaller, and the riband only 1½ inches in width; it is attached by a buckle from the left breast of the coat or outer garment.

The Insignia are returnable on death or promotion to a higher grade in the Order, and, subject to the modifications which have been enumerated, the original statutes remain in force.

In 1875 the numbers of the Second Class were increased to sixty members, while the Third Class was raised to 120 members, the figures being further augmented in 1876 to 72 and 144 respectively, and further, in the latter year five members were added to the First Class, which then stood at thirty members, eighteen Natives and twelve Europeans. In this same year, too, it was ordained that service in the Home Department of the Secretary of State for India might, under certain circumstances, be deemed a qualification for either the Second or Third Class of the Order.

NAVAL AND MILITARY NOTES AND QUERIES.

OUR CAMPAIGNS SINCE 1865.—The records, remarks Captain Callwell, in his *Lessons to be learnt from Campaigns since* 1865, of the long and varied roll of campaigns in which, from 1865 to the present day, British troops have played a part will well repay a close and careful study. Struggles of this class have not the absorbing interest that surrounds the great European struggles of our time. Their episodes are less striking, their results are less decisive, their history is less clear and intelligible. When the motives that influence the commanders of both contending armies are before us, their actions are of necessity more instructive as illustrations of the art of war than where the movements and the objects on one side are wrapped in doubt. The operations of a few thousand British soldiers in remote theatres of war, pitted against enemies without arms of precision and without organization, bear no comparison, as strategical and tactical studies, with the momentous European events of 1866 and 1870; but the lessons to be deduced from their story are none the less interesting and valuable. These operations illustrate the vicissitudes of irregular warfare in every form. They teach us how to deal with the daring savage races of Africa, how to overcome the treacherous and fanatical tribesmen of the Asiatic highlands, how to conduct operations amid the tangled luxuriance of tropical forests, and how to cope with the crafty and inveterately hostile aliens who share our dominion over the colonies south of the Zambesi. They teach us lessons strategical, tactical, and administrative. We learn from their history that there is much in our military system that is questionable, that there is not a little that is indefensible; but we learn more—we learn that the British soldier of to-day is not unworthy of the rich heritage of glorious tradition handed down to him from the dim past; that the spirit that animates our army amid the trials and privations of a Crimean winter, and during the dark days of the Indian Mutiny, still exists in its ranks, needing but the opportunity to urge it to fresh victories. The uneventful narrative of these protracted and toilsome operations is ever and anon lighted up by brilliant exploits, by deeds of gallantry and self-devotion, such as Napier loved to chronicle of yore. The prolonged and trying intervals that separate the more stirring incidents of actual conflict one from another bear witness to the enduring of weariness and hardships cheerfully and without murmur. "The first quality of the soldier," said Napoleon, "is constancy in undergoing fatigue and privation; courage has but the second place." Our military history of the past twenty years teaches us that the *personnel* of our army possesses a rich store of both. It is not the least valuable lesson written in its pages.

R. O'BYRNE.

THE DISMASTED TROOP-SHIP.

By ADMIRAL H. F. WINNINGTON-INGRAM.

IN the summer of 1858 Her Majesty's steam paddle sloop *Argus*, mounting two heavy pivot guns, and four 32-pounders on the broadside, was lying at Spithead, waiting orders to proceed on foreign service. She had—a short time previously—been put in commission by the author of this article as her commander, and was destined, during the three years she remained under his pennant, to be present at stirring scenes that have now become matters of history. Notes of these events were taken at the time of their occurrence, and have been carefully preserved, pending an opportunity of giving them publicity. That opportunity is now afforded through the kind permit of the editor and proprietors of this magazine, who have opened its pages for their insertion. It will be the endeavour of the author to portray by prose and pictures in its further issues what he himself witnessed.

The present relation of that which befell the hired troopship *Bombay* is taken from the earlier portion of the notes. It would here, perhaps, be interesting to remark the total change that has been effected in the construction of ships' armaments during the last quarter of a century. The guns on board the *Argus* in 1858 were composed entirely of smooth-bores, and are now, 1887, completely obsolete. Forward was mounted, on carriage and slide, a 95-cwt. piece of ordnance, discharging a solid spherical shot of 68 lbs. weight. This gun could be pivoted on fighting-bolts, either to fire on bow or beam. The after pivot-gun threw hollow spherical shot of 84 lb. weight, and both were used for shells. The four 32-pounders were placed inside ports, and mounted on the then common truck carriage. Besides these were the boats' guns of brass metal, three in number, viz. two 24-pounders for the paddle-box flats, and one 12-pounder to be mounted in pinnace. The ship herself was close upon 1,000 tons burthen, and was considered a fine commander's command.

It was whilst thus detained at Spithead that I was suddenly ordered to receive on board 200 marine light infantry with their officers from Forton barracks, and proceed immediately for Portland to suppress a mutiny amongst the convicts there. Some of these men had risen upon the warders whilst superintending their quarrying stone for the great breakwater in course of completion, and which now protects the anchorage between the town of Weymouth, and the headland known as the "Bill of Portland." The prisoners, for a time, seemed to have gained complete mastery over their jailors, and great fears were entertained by the inhabitants of Weymouth that the small military detachment posted on the peninsula would be insufficient to prevent the mutineers crossing the Chisel beach, and paying their town a visit.

Power had been given me to use the authority of a Director of Prisons on arriving at Portland. I was thus enabled to make a short end of the mutiny. Landing blue-jackets and field-pieces on the Chisel beach to prevent any escape of convicts in that quarter, the marines marched upon the prison. This they did in skirmishing order, routing out, by the way, any prisoners that had secreted themselves in the quarries. The place was then surrounded, and the mutineers called upon to deliver up any arms belonging to the warders they had become possessed of, on pain of the consequences in case of refusal.

After these weapons had been thus secured, the ringleaders were arrested and punished by flogging. The boatswain's mates of *Argus* applied the lash, and as these petty officers received five shillings for each prisoner operated upon, they were not unwilling castigators.

Sir John Dean Paul (Bart.) Strachan, and Bates, the fraudulent bankers, were incarcerated in the prison at this time, but were not at all implicated in the rising.

In November of 1858 the *Argus* was ordered on the disagreeable duty of cruizing in the chops of the Channel to relieve any of the homeward bound merchant vessels that might have run short of provisions or water in consequence of being detained by the easterly gales then blowing.

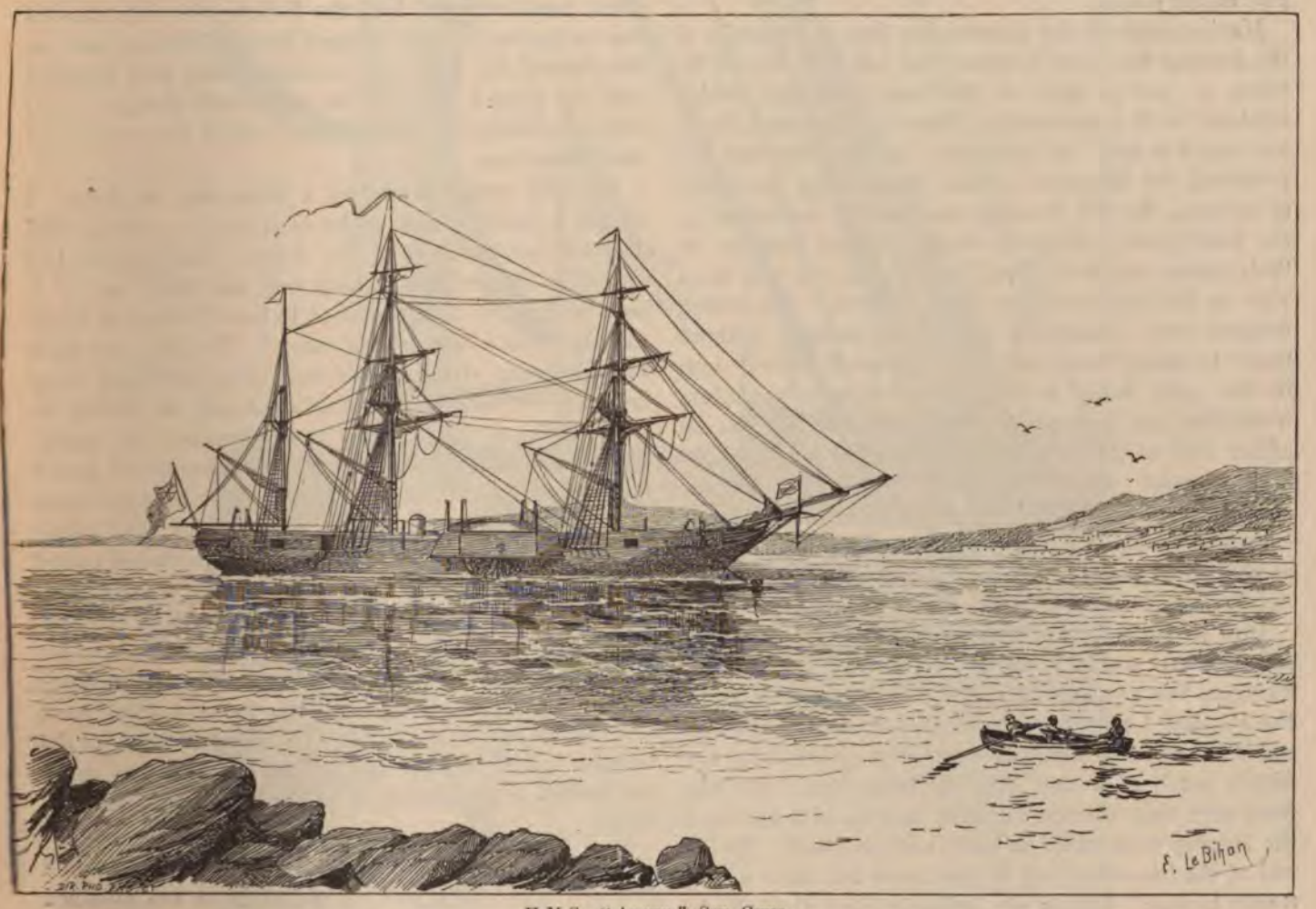
I gather from *Journal of Argus* that my cabin was inundated with sea-water the whole of this cruize owing to the stern ports not being properly fitted. I also find a notice interesting to ornithologists. A Kestrel hawk, blown off the land by the prevailing easterly winds took refuge in the rigging of *Argus*, but soon becoming aware of a chaffinch in a similar plight with one fell swoop seized him from his perch, and bore him to the main-topsail yard for gastronomical discussion. The sailors, in disgust at seeing a shipmate in distress thus disposed of, immediately mounted to the rescue, and so harassed the voracious bird by chasing him from yard to yard, that he eventually quitted the ship with his victim fast

closed in his talons. However, necessity seems to be as much the mother of invention with hawks as with men, for without withdrawing far from the vessel, he continued hovering in the air, momentarily jerking his legs forward to enable him to reach the prey with his beak, and in this poised position to satisfy his hunger. In the end this extraordinary exertion proved fatal to the hawk's liberty, for, becoming exhausted by it, and probably also from previous fasting, he once more sought refuge on the yards. This Jack stoutly denied him. He then, apparently in despair, and to the surprise of the men, dropped into their midst on the forecastle deck, and was there captured with the headless chaffinch still in his grasp.

On November 30th, whilst the *Argus* was lying at Spithead, a signal was made from the flag-ship to prepare for sea immediately, and that my presence was required at the Admiral's office. I there received orders to go in search of a vessel named the *Bombay*. She had troops on board bound for India, and was last seen far to the westward of Ireland, and totally dismasted. Men-of-war from other naval ports were despatched on the same mission.

The furious easterly gales that had been raging up to this time had now given place to storms from the south-west, with thick drizzling weather; and through these the *Argus* had to be forced down the channel and out into the Atlantic.

Our chances were not many of sighting the distressed ship, as the view around us was limited to something less than a mile. However, there was nothing to be done but steam as fast as the heavy head seas would permit for the latitude and longitude where the *Bombay* had been last seen.



H.M.S. "Argus," Six Guns.

On December 3rd, when about sixty miles to the westward of the Scilly Islands, and blowing hard from W.S.W. with a heavy sea running, a dismasted ship suddenly loomed out through the mist, and we found ourselves, by a bit of good fortune, close aboard the object of our search, She had a royal set on the stump of her foremast, and was heading for the Channel; but the following seas caused the vessel to yaw so considerably that no proper course could be steered by her.

Having ascertained, by signal, that she was not in want of provisions or water, I placed the *Argus* well to

windward, and then lowered a cutter, with men and an officer on board, and despatched them to the *Bombay* with orders to keep well out of reach of the heavy lurches that ship was making, and on no account attempt to gain her deck, but to lay off and find out, by hailing, what her wants were, and if she was prepared to be taken in tow.

In the meanwhile, the *Argus* steamed down to leeward of the ship, ready to pick up her boat again. By this manœuvre the cutter was enabled to perform her mission with comparative ease, as she had always the gale in her favour.

Having received the information that the captain of the *Bombay* was most anxious that his ship should be taken in tow in spite of the heavy weather, which rendered such a proceeding almost an impossibility, I was urged to make the attempt. As the ship was approached, the difficulties of the undertaking were seen to increase, for the *Bombay* was literally wallowing in the huge green seas which at one moment bore her on their crests, and in the next instant shut her out from view as she descended into their hollows. Her rolling motions were something fearful to behold; without masts to steady them, and with a cargo of railway iron in her hold, badly stowed, she acted as a pendulum would that had been set to swing forty-five degrees on either side of its perpendicular. As her port gunwale dipped under water, the broad deck—with soldiers clinging for dear life to ropes passed along the bulwarks—seemed to stand up straight out of the ocean; and, as she rolled quickly back again, her coppered bottom, nearly down to the keel, was exposed to our gaze.

How to put a line on board such a heaving, tumbling ship, without accident, was the question of the moment. Bringing the *Argus* as near as I dared under the lee of the *Bombay*, I caused a rope, that had been previously coiled in one of our quarter-boats, to be carried by her within reach of a cast from the latter ship. The two lines were then bent on together, and the men on board the *Bombay* were waved to haul them on board. To the end of the line remaining in the *Argus* was bent a new 8-inch hawser. It was my intention that this should be drawn on board the *Bombay*, but, unfortunately, in one of the heavy lurches of that vessel the line carried away, and darkness setting in prevented further endeavours being made that night.

About 11 P.M. the Scilly lights came in view. This much increased my anxiety for the safety of the dismasted ship, as the wind and sea were fast driving her in their direction. All that could be done was to keep the *Bombay* close company until daylight again broke, when another effort would be made to get her in tow; or, should she be in jeopardy during the night of being wrecked on the Scillys, to run all risks in an endeavour to pass hawsers to her.

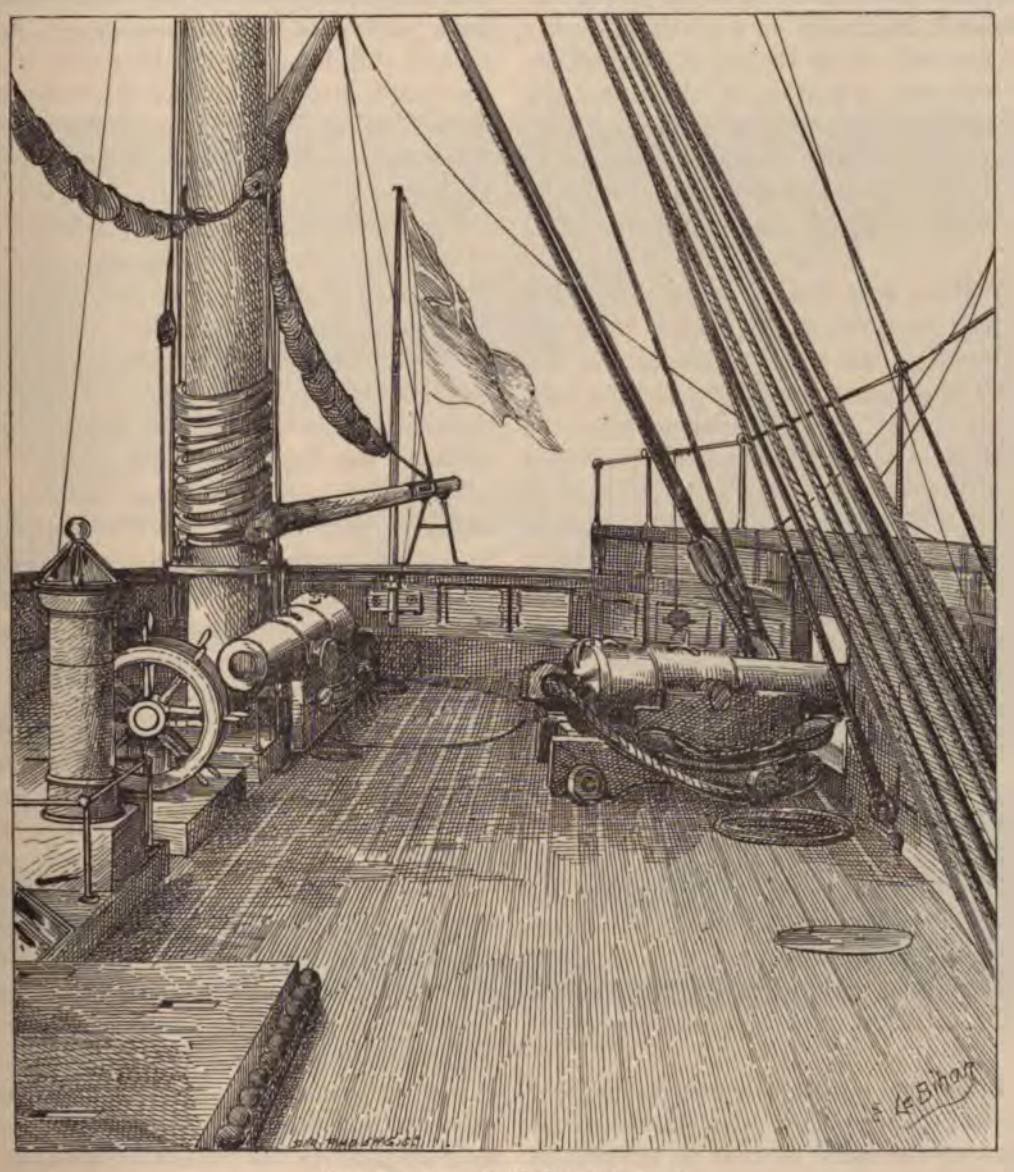
Luckily the tend of the tide helped to sweep the ship clear of the islands, and with the first dawn of day I placed the *Argus* again alongside of her, and put a "hauling line" on board to which they bent a 10-inch hawser of their own; this was successfully hauled on board the *Argus*, and by the line that accompanied it from the *Bombay* I sent back our new 8-inch. With these secured on either side to the bollards of the *Argus* I ventured to proceed slowly ahead, equalizing the strain on both as the first tug was felt. Hardly, however, had the full weight of the *Bombay* been upon them—as she dived head foremost into the hollow of a tremendous sea—when her hawser snapped like packthread, and as she crested the following mountain wave and towered over the *Argus* I was sure our rope would also give way, instead of which the bollards that held it were torn from their fastenings.

As both vessels had now a little way on them, I caused a hauling-line to be bent on to a buoy, and dropped over the stern of the *Argus*. The buoy floated under the bows of the *Bombay*, and was fished up by a boat-hook. We then signalled to her: "Haul in upon the line made fast to the buoy." To this our new 11-inch hemp stream cable was bent, and when they had got the end of the latter on board we hailed to secure it round the stump of their foremast. As apparently none of the fastenings in the *Argus* would stand the violent jerking strains the hawsers brought upon them, I ordered our runners and tackles, and other purchases, to be hooked to selvagee strops passed round the hawsers, and also round the steamer's mainmast. The falls of these purchases were brought to the capstan, anchor bitts, and attended to by several men under charge of officers, who were told to watch for the moment when, by one vessel being on the top of a great wave and the other in its trough, the severest trial to the hawsers might be expected. They were then to cause the tackles to be eased up to prevent a sudden jerk upon them.

With these precautions it was satisfactory to find that our cables held, and that a fair speed was obtained by the two vessels which soon brought the English coast in view. After sunset the wind freshened from the south-west considerably, and there came up with it thick driving rain, the sea assumed an angry appearance, and at times struck the *Bombay* with such violence as to force her ahead of the steady pace maintained by the *Argus*, and threatened to bring about a collision. As night set in—enshrouded in darkness and mist—with an increasing gale howling through the rigging overhead, it was quite awe-inspiring to watch the near approach of this lumbering teak-built ship, as, borne on the foaming crest of some monster sea, she seemed determined on sending the *Argus* to destruction, by landing herself on the sloop's deck, and, indeed, on several

occasions the revolutions of the steamer's engines had to be accelerated to avoid such a catastrophe. Then came the excessive danger of the towing cables parting by the violent jerk which was inevitable when they were again tautened, and the nearer the coast was approached the more this was felt, as it would have been a hopeless task to have passed fresh hawsers between the ships on such a night.

was approached there was a subsidence of the waves, but the wind still broke in violent squalls over the two ships, and tended to drive them to leeward, so that it was as much as the steam power of the *Argus* could perform to tow her weighty companion through the western entrance to the Sound. She had then the by no means easy task left of threading a way through the many men-of-war and merchant ships anchored there,



QUARTER-DECK OF H.M.S. "ARGUS."

Thus the fate of the *Bombay*, and all on board of her, depended on the well-tested strands of these dockyard-made ropes.

A course was now shaped for Plymouth Sound, and first the Lizard and then the Eddystone Light was sighted, and the latter was passed in such close proximity, that the boom of the seas which struck its basement rock and covered the lighthouse itself in a cloud of spray, could be distinctly heard. As the breakwater

in a blinding darkness. Eventually both vessels were safely moored within sight of the lights of Plymouth at 3.30 A.M., on December 5, 1858.

Soon after daylight Captain Flamank of the *Bombay*, and Captain Steel, of the 17th Lancers, who was in command of the soldiers on board the troopship, came to express their thanks for the timely aid given by the *Argus*, and then related the events that had led up to the disasters they experienced.

It seems that the *Bombay* had been refitting in the London Docks—after a return voyage from India—when she was called upon by her owners to fulfil a contract they had made with the Government, to be ready to convey certain detachments of regiments to Bombay by an early date. The work of refitting and stowing of cargo had therefore to be unduly hastened; the consequences were, that the lower rigging was not properly set up, and the railway iron for India, instead of being stowed diagonally on a platform in her hold, was piled fore and aft on the top of her keelson. In this plight—and after a portion of the troops she had to take out had been embarked at Gravesend—the voyage was commenced, under orders to proceed to Cork and there receive the remainder of the military, before finally leaving for her destination in the East Indies.

Strong easterly winds were blowing at the time of her departure, and these sent the ship spinning down the Channel with a rattling fair wind, which carried her right across to the Irish coast, and in sight of the light on the old Head of Kinsale. Not wishing to enter the Cove of Cork at night, Captain Flamank lay his vessel to, off the port, with the intention of sailing into it at early dawn, but, unfortunately, during the hours that intervened, the weather had assumed a terrible aspect. The wind had increased in force until it blew a perfect hurricane from the N.E., which obliged Captain Flamank to take all square canvas off his vessel, and place her with head to the southward under try-sails, and in this manner she drifted away to leeward of her port; and the farther she was swept—by the furious blast—into the Atlantic, so the sea rose, and, breaking over her decks, washed away the boats, galley, and nearly every movable article that rested upon them.

In the meantime, the labouring of the vessel was excessive, caused by the defective stowage of her cargo. The standing rigging also began to show signs of slacking, from the great pressure of the wind on spars and still unfurled sails, that the crew had been struggling with for hours.

In merchant ships, the canvas can only be handled by degrees, and the harder it blows the more men are required to gather up the sails, so that in the present instance nearly the whole of the ship's company of the *Bombay* had to be sent aloft to furl one topsail at a time.

The chief mate and twenty-four of the ship's best seamen were engaged in the above duty, and having stowed the canvas on the foremast, had proceeded to the main-topsail-yard, to gather in the splitting fragments of the sail there. Whilst so engaged, a monster sea struck the ship on her port beam, when she was already on her heavy roll to starboard, and threw the vessel completely over on her beam ends. She happily righted herself, but the mainmast was gone overboard with her best seamen and chief mate with it. The mizenmast—in the weather roll—shared the same fate. A few despairing cries were heard through the shrieking of the tempest, but the rushing waves soon overwhelmed these voices as they poured their great crests of flying foam upon the heads of the unfortunates. To succour them would have been an impossibility, even had the *Bombay* boats to be lowered, but these—as we have seen—had been washed away. A hand life-buoy or two still hung to the bulwarks, and were thrown overboard, more as a matter of course than in the hope of their being of any service to the struggling seamen, who disappeared one by one before the very eyes of their shipmates.

The wreck of the masts had now to be cut away clear of the ship, or she would otherwise beat herself to pieces against them. This was arduous work for the remnant of the crew, and then nothing remained to be done but to watch the horizon for some sign of a passing steamer, whose look-out might observe their palpable distress, and her captain be induced to keep company until the gale broke and enabled him to tow.

It was not until the *Bombay* had been driven by the easterly winds into mid Atlantic, that signs of a change in the weather were noticed by a heavy bank of cloud making its appearance in the south-west; but by this time the foremast had also gone overboard, and the ship was a log upon the water.

A sailing vessel or two shortly hove in sight from that quarter, steering for the Channel with a fair wind. These spoke the *Bombay*, but, as that ship was neither in want of provisions nor water, they passed on, with a promise to report her condition at the nearest English port.

Captain Flamank had then endeavoured to get a little headway on his vessel by rigging up a short jury-mast on the stump of the foremast, and hoisting a royal there. In this he succeeded; but to steer the *Bombay* was a difficult matter with only this one sail set forwards, so he tried to erect a jury mizen-mast, and it was while constructing it that, perhaps, the saddest event of this disastrous voyage occurred. One of the men engaged in the undertaking was a fine old sailor doing duty on board as a quartermaster. He was working in the mizen channels, setting up the jury-rigging, when, losing his hold in a heavy roll the ship gave, he fell overboard. There was little wind blowing at the time, and the man being a good swimmer, no fear seems to have been entertained, at the moment, for his safety. There was one hen-coop remaining on the deck of the *Bombay*, and this was thrown over the stern. The man succeeded in reaching it, and climbed up out of the water, from whence he hailed, in a jocular manner, his shipmates on board.

The *Bombay* had now drifted some distance from the hen-coop, yet the man's face could be seen through a telescope, with no trace of anxiety on it, but evidently expressing a calm waiting for the boat to take him off. Poor fellow! he had not as yet realised the fact that his ship had no boats. Better for him to have been lost with his shipmates of the other day; theirs was a speedy death—his must be one long agony of suspense. As no aid approached him from his ship, the recollection of the lost boats must have flashed across his mind, for, when next he was viewed through the telescope, his head was sunk in despair.

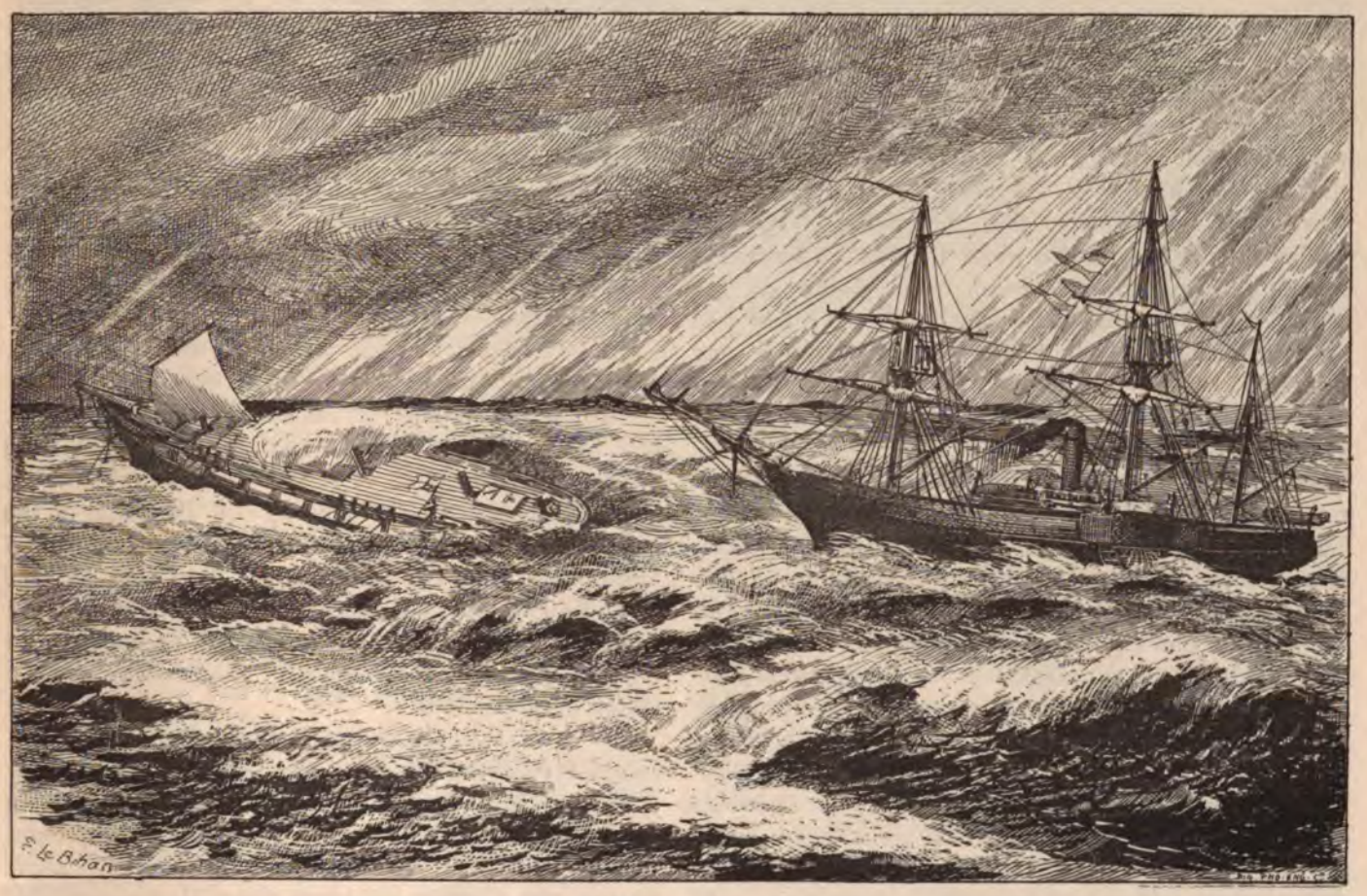
Yet there was good hope in those on board the *Bombay* that some passing vessel might see him; but as night set in without any sail appearing, and the wind freshened to a gale, they knew his chances were gone, and that he must perish miserably.

Imagination fails to conjure up the horrors that brave soul endured, until, weakened by exposure and his efforts to retain his hold on the hen-coop, he probably became a prey to the first strong wave that broke over him.

The following day after this melancholy event the *Argus* was sighted.

NOTE.—The above narrative of the occurrences on board the *Bombay* were written from an oral version delivered to the author the day after the ship's rescue. He has, however, recently renewed his acquaintance with (now) Colonel Charles Steel, who has kindly offered to place his manuscript, describing the disasters he witnessed, at the service of this Magazine.

H. F. WINNINGTON-INGRAM.



THE TROOP-SHIP DISMASTED.

STATEMENT of CAPTAIN CHARLES STEEL, 17th Lancers, in command of the detachment of troops on board the hired freight ship *Bombay*.

"I embarked with certain troops at Gravesend on the 6th of November 1858, on board the *Bombay*, and we weighed anchor from Cork about 9 o'clock the following morning, to embark other detachments under orders to proceed to the East Indies.

"About 6 P.M. on the 10th of November, we were within fifteen miles of Cork, and at this distance the master of the *Bombay* signalled for a pilot, but he would not approach that harbour any nearer, although the

lights were clearly visible, and there was but little or no sea on at the time. As no pilot came on board, the ship was hove to for the night, during which the wind increased so considerably, and the ship drifted so much to leeward of her course, that she was unable afterwards to recover her lost way, as the gale increased to such a height, with a frightful heavy sea.

"A succession of gales and hurricanes continuing with scarcely any abatement for about fifteen days, during which the ship laboured fearfully, losing all her topmasts, and tearing to ribbons every sail that was bent.

"On the 16th of November, the gale and sea still increasing, the main and mizen mast, went clean from the decks, on which melancholy occasion the chief officer and twelve seamen were lost, out of twenty of the crew who were aloft at the time. On the 23rd of November the foremast also went overboard, thus leaving the vessel totally helpless, so that the rolling of the ship during the following night, when the sea was running mountains high, was from beam end to beam end, the sea striking her with such violence on each lurch, that everyone on board thought she might go down at any moment.

It appeared to me that on the 17th, when a large steamer was sighted, a signal of distress should have been made, and I expressed myself to this effect to the master of the ship, who seemed to differ from my views. The other vessels which were spoken could not render any assistance. However, on the afternoon of the 24th of November, after all the masts were gone, an American barque bore down upon us. I then felt it my imperative duty to desire the master of the *Bombay* to beg the master of the American vessel to stay by us during the night, every boat having been either lost or rendered quite useless long before this. The master of the *Bombay* reluctantly acceding to this request, the American vessel lay by us for some time, but went away during the night, although the sea was still high, and, of course, our position not improved. After this, with great difficulty, small jury masts were got up, and the wind having, providentially, changed, we were thus enabled slowly to make some advance towards land, and on Friday, the 3rd of December, we were picked up by H.M. steamer *Argus*, which lay by us till the following morning, when she took the *Bombay* in tow.

"I am of opinion, with nearly all the ship's officers, that the gear and other fittings of the ship were, at the time of embarkation, of an inferior character, and not at all suited for a long voyage round the Cape at this season of the year. In support of this opinion, it will be merely necessary for me to state that everything got adrift, owing to the imperfect manner in which they were fitted up; and during the last fortnight the cooking for nearly 1,000 individuals had to done in the gallery appropriated merely for the ship's company, that intended for the troops being unavailable, and that even gave way within the last few days, as it was not properly fastened. There was no bread baked for the officers during the time they were on board, and the provisions for them inferior and scanty.

"It has come to my knowledge that the ship was condemned when first tendered to the Government, but afterwards accepted if she could be got ready immediately, and this, I believe, was done in five days by a Mr. Gladstone, the ship's husband.

"The discomfort of the troops on board was great, resulting from the cargo—iron and its stowage.

"There was, happily, no casualties among the troops, but their clothing, arms, and accoutrements were greatly damaged.

"The conduct of the officers, and discipline of the men under command was everything to be desired during this long and trying period, and this was the more praiseworthy, considering the latter were all very young soldiers, belonging to different regiments. As regards myself, I was for nearly three weeks without taking off my clothes.

"Charles Steel (Captain, 17th Lancers).
Dated, Plymouth, December 5th, 1858."

Note.—The commander of the *Argus* received an official letter of "approval" from my Lords Commissioners of the Admiralty for the service above related, and Captain Steel was awarded a very highly complimentary letter from his Royal Highness the Commander-in-Chief, for his conduct in the trying circumstances under which he was placed.

H. F. W.-I.

THE GREAT WALL OF CHINA.

By the HON. HENRY N. SHORE, R.N.

ALL the great nations of antiquity have left evidence of their existence in the form of some Cyclopean structure erected at the period of their greatest prosperity. Thus, while ancient Egypt is best known to moderns by her pyramids, China is always associated with the Great Wall. But while all the other ancient empires have passed away, and are now remembered only by their monuments, China remains to the present day, out-distanced, it is true, by the nations of the West in the race for power, but as strong, vigorous, and wealthy as she ever was, and, what is even more remarkable, without exhibiting any symptoms of senility.

The "Myriad Mile Wall," as it is called by the Chinese, has been very properly regarded as one of the seven wonders of the world, exceeding as it does, both in extent and in the materials used, any other great work that has been handed down to modern times. According to accepted authorities, it was built about 200 years B.C., for the purpose of protecting China from the incursions of the tribes along its northern frontier, who, like the Scottish freebooters, were fond of raiding the property of their wealthy neighbours, and, being well mounted and daring riders, would swoop down in vast swarms of from two to three hundred thousand with irresistible force. The length of the wall is variously estimated at from 1,200 to 1,500 miles; the discrepancy having its origin doubtless in the fact that for part of the distance there is an inner as well as an outer wall, both of which claim to be the "Great" Wall; and especially to the fact that no accurate surveys or measurements have as yet been accomplished. Commencing from a point in about 90° E. long. and 40° N. lat., it runs in an easterly direction over lofty mountains, through deep gorges, and across rivers by means of bridges to the Gulf of Liau-tung, where, to prevent a flanking manœuvre being attempted, it has been carried seawards for about fifty yards. The climbings and wanderings of the wall throughout its entire length are indeed its most remarkable feature, and in these respects present, perhaps, the most singular instance of misdirected effort in the shape of wall-architecture that history records. It crosses one ridge five thousand feet above the sea level, and runs for miles over rugged mountains where no infantry soldier would dream of venturing to attack, much less any Tartar cavalry.

The materials used in its construction necessarily vary with the nature of the country through which it passes; thus, while portions are very solidly constructed of blue bricks on a granite foundation, with massive watch-towers at intervals of about two hundred yards, and with a thickness of twenty-five feet at the base, diminishing to fifteen on top, and an average height of twenty feet, including a five feet parapet, in other parts it appears to have been built of earth alone, with a facing of masonry. Again, in the neighbourhood of Kalgan, about ninety miles north of Pekin, the wall consists of a stone mound of triangular section, varying in height from fifteen to twenty-five feet, and with an average thickness at base of fifteen feet, tapering to eight inches at the apex; the material used here being quartz porphyry fixed with chunam.

The eastern extremity, which runs for some six or seven miles over level ground, and was, therefore, especially susceptible to attack, seems to have been more solidly built than other parts; and, besides numerous towers at short intervals, is provided with walled enclosures for the accommodation of troops. The part running out seawards is built entirely of granite, but is now in an utterly ruinous condition; the portion immediately adjoining being buried in sand which has drifted over it in the course of ages.

Both in conception and execution the wall partakes of barbaric splendour, and although now in a state of partial decay, being no longer required since the absorption of the Tartar country into the Chinese Empire, its existence to the present time in a state of comparative entirety bears evidence of the care and solidity with which it was constructed. Sir George Staunton tells us that, to raise men to build it, the Emperor commanded that three out of every ten men throughout his dominions should work at it; and afterwards two out of every five were requisitioned for the purpose, and the wall was finished in five years. The inhabitants of each province worked as near to their own abodes as possible; but either by the length of their journey, or the rigour of the climate, as well as the scarcity of food in these desolate regions, it is recorded by native historians that almost the entire body of workmen died unexpectedly, and that such a hubbub was raised in consequence, that the people rose and murdered the Emperor and his son.

Those who are fond of statistics will be interested to know that an American engineer, who has been making

a special study of the subject on the spot, calculates that the Great Wall has a contents of eighteen million cubic mètres, while the cubic contents of the great pyramid is only 241,200 mètres; and that the material used in its construction would be sufficient to build a wall round the globe six feet high and two feet thick. He also estimates the cost of the wall to be equal to the railway mileage of the United States (126,000 miles).

Even the "great wall" of China has its detractors, and in a pamphlet issued recently, a certain Abbé Larrieu seeks to make out that the structure, as popularly pictured and described by most writers, exists only in the imagination. Not that there is no "wall," but the Abbé combats the notion of a continuous structure of stone, and even asserts that its windings over hill and dale, over mountain and river and valley, is a



THE "MYRIAD MILE WALL."



THE GREAT WALL AT THE GULF OF LIAU-TUNG.



THE EASTERN EXTREMITY OF THE GREAT WALL.

pure figment. Doubtless the popular notions regarding the dimensions and methods of construction of the wall are somewhat exaggerated, but that its existence and marvellous windings are indeed incontestible is proved, not only by the testimony of numerous writers, ancient and modern, but by the accompanying drawings from sketches taken on the spot.* With regard to the date of its construction, the Abbé is of opinion—and here he is at one with a recent traveller—that the idea of the wall only originated with the Ming dynasty (1368–1644), which is not improbable when it is borne in mind that the famous Genghis Ghan, Tamerlane, and others who harassed the Chinese, only lived in the twelfth and thirteenth centuries. It cannot, indeed, but strike any person as remarkable that in a climate ranging from almost tropical heat in summer to a winter of arctic severity, with intermediate periods of heavy rainfall, any structure built of the materials used in the Great Wall could have survived during a period of over two thousand years! As time goes on, and facilities of travel increase in China, this question, as well as many others concerning the Great Wall, will doubtless be settled to the satisfaction of everyone, and its wanderings as carefully mapped out and delineated as those of the old Roman wall from the Solway to the Tyne.

* Taken May 1877.

NAVAL AND MILITARY NOTES AND QUERIES.

MEDIÆVAL ARMIES.—The downfall of the Roman Empire marks the dividing point between ancient and mediæval times in military matters, as well as in other things that concern the existence of nations. The barbarians and semi-barbarians who attacked on all sides the once mighty but now degenerate empire, gradually gained possession of the vast regions which composed it. The mode in which these conquests were made gave rise to the *feudal system*. What all had aided to acquire by conquest, all demanded to share in proportions more or less equal. Hence arose a division of the conquered territory; lands were held from the chief by feudal tenure, almost in independent sovereignty. When European kingdoms were gradually formed out of the wrecks of the empire, the military arrangements put on a peculiar form. The king could not maintain a standing army, for his barons or feudal chieftains were jealous of allowing him too much power. He could only strengthen himself by obtaining their aid on certain terms, or by allowing them to weaken themselves in intestine broils, to which they had always much proneness. Each baron had a small army composed of his own militia or retainers, available for battle at short notice. The contests of these small armies, sometimes combined and sometimes isolated, made up a greater part of the wars of the Middle Ages. Of military tactics or strategy, there was very little; the campaigns were desultory and indecisive; and the battles were gained more by individual valour than by any well-concerted plan. One great exception to this military feudality was furnished by the Crusades. So far as concerns armies, however, in their organization and discipline these expeditions effected but little. The military forces which went to the Holy Land were little better than armed mobs, upheld by fanaticism, but not at all by science or discipline. Numbers and individual bravery were left to do the work, combination and forethought being disregarded. A much greater motive power for change during the Middle Ages was the invention of gunpowder. When men could fight at a greater distance than before, and on a system which brought mechanism to the aid of valour, everything connected with the military art underwent a revolution. Historically, however, this great change was not very apparent until after the period usually denominated as the Middle Ages. The art of making good cannon and hand-guns grew up gradually like other arts; and armies long continued to depend principally on the older weapons—spears, darts, arrows, axes, maces, swords and daggers. During the greater part of the fourteenth and fifteenth centuries, the chief armies maintained were those of the Spaniards and the Moors on one European battle-ground, by the English and French on another, and by the several Italian Republics on the third. In these armies the cavalry was considered as the chief element. The knights and their horses alike were frequently covered with plate or chain armour; and the offensive weapons were lances, swords, daggers, and battle-axes. A kind of light cavalry was sometimes formed of archers on small horses. As to army formation, there was still little that could deserve the name; there was no particular order of battle; each knight sought how he could best distinguish himself by personal valour, and to each was usually attached an esquire, abetting him as a second during the contest. Sometimes it even happened that the fate of a battle was allowed to depend upon a combat between two knights. No attempt was made until the close of the fifteenth century to embody a system of tactics and manœuvres for cavalry; and even that attempt was of a most primitive character. Nor was it far otherwise with the foot-soldiers; they were gradually becoming acquainted with the use of fire-arms; but midway, as it were, between two systems, they observed neither completely, and the army in which they served presented very little definite organization.

R. O'BYRNE.

SHIP-LAUNCHING.

By L. A. SMITH.

Part I.

By viewing Nature, Nature's handmaid, Art,
Makes mighty things from small beginnings grow;
Thus fishes first to shipping did impart
Their tail the rudder, and their head the prow.

Dryden.

WHETHER regarded as a substitute—the more than substitute—for stone walls as a defence, or as the channel whereby commerce is carried on with foreign countries, a ship must ever be an object of interest and admiration, and as a work of art calls forth expressions of wonder at all times and in nearly all countries. Dryden gives credence to the opinion that fishes were the first ship-draughtsmen, in the lines quoted above; certain it is that the art of constructing barks capable to a greater or less degree of contending with the winds and waves has been known from a very remote period, and the steps by which such excellence in this art has been attained, the countries in which the art has been most fully developed, and the present state in which it exists in foreign countries, form collectively the materials for a great history of naval architecture. But the purpose of this article is not to deal with the history of ship-building, but to give some few details of the different modes of launching vessels at different periods and in different lands; and to attempt to trace the method of launching and its attendant ceremonies, from the canoe improvised by the Maori to avert the wetting consequent on fording a river (see illustration 1), to the grand ceremony of christening the latest Government belted cruiser, or ocean palace built for some world-renowned company. The New-Zealander launching his canoe, is the most primitive of all; he not only designs, constructs, and finishes his boat, but launches himself with it, and, as soon as he reaches his destination, pushes the canoe back into the water, and so abandons it, well knowing that to make a second will not be nearly so troublesome as to take care of the first. He merely goes to the nearest stringy-bark trees, chooses one which has the lines straight, not gnarled, chops a circle round the tree so as to sever the bark, and about seven or eight feet higher he chops a second circle. His next proceeding is to make a longitudinal cut down one side of the tree, and a corresponding one on the other side. He then inserts the handle of his tomahawk, his digging-stick, or any such implement, between the bark and the wood, and, by judicious handling, strips off the bark in two semi-cylindrical, trough-like pieces, each of which is capable of being made into a boat. Should he be alone, he seldom troubles himself to do more than tie the



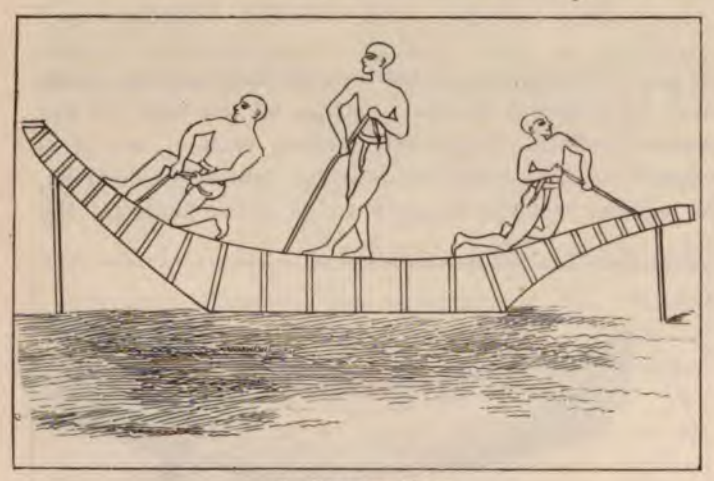
1. Maori Launching his Canoe.

bark together at each end of the trough, and in this frail vessel he will commit himself to the river.

But if his wife or any second person should be with him, he makes the simple boat more trustworthy by

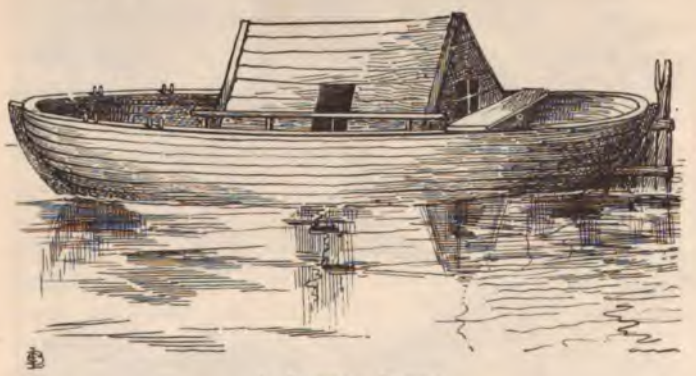
digging a quantity of clay out of the river-bank, kneading it into each end of the trough, and tying the bark over the clay. He then pushes the boat into the water —the building of it has taken place as near the edge of the bank as may be—and, steadying it with his fish-spear, springs in himself, and sets off on his voyage down the river.

The Esquimaux's kajack or kia (man's boat) has



2. Papyrus Boat.

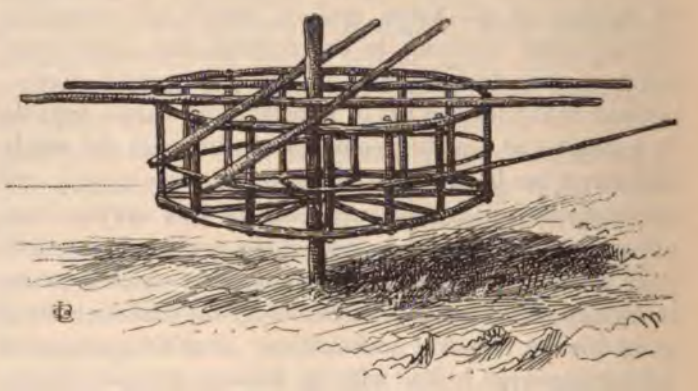
scarcely more time expended over it; it is, indeed, a remarkable piece of workmanship, shuttle-shaped, both ends being sharply-pointed. It is made of a very slight framework of wood and whalebone, over which is stretched a covering of skin. So light is this kajack that the Esquimaux fashions it in his own house, and carries it, from there to the water, on his head. When the water is reached, the boat is simply pushed into it, and for all ceremony has an inflated seal's



3. Russian Lodka.

bladder attached to it as an omen of good luck. The woman's boat, or oomiak of the Esquimaux, as it is employed in the transport of more persons than one, and also for the conveyance of baggage, is an affair of more detail, though certainly not of more attention to comfort. Like most canoes belonging to the cold parts of the world, the whole of the material for its construction is furnished by animals: the framework is of whalebone, the covering of seal-skin, and the sail of the intestines of the walrus. It is a curious fact that the boats used by the natives of hot countries are made entirely of products from the vegetable kingdom, such as the papyrus boat of the Egyptians, the matting-covered mussulah boats of India, and the rush-lined canoes of Southern Africa; whilst the colder countries rely on the animal world for their boat-building appliances.

Nautical customs have ever been stamped with all that is most characteristic of the nationality of a country, and from the moment a vessel first takes the water, to the time when fully-rigged and manned she sails away on her maiden voyage, she is the object of all sorts of forms and ceremonies. Of our own country, and of the present time, this can scarcely be said to be the case, for, with the exception of Government vessels over which a special service is commanded to be read, a launch, though it must ever be an object of interest and of a certain amount of enthusiasm, and, to those most concerned, of grave solicitude, is yet too purely an everyday



4. Capstan for Launching an Indian Boat.

affair, and we are a too thoroughly commercial people, to attach any very particular importance to it, or to retard its achievement by the observance of any quaint custom or pedantic ceremony. But with most nations a launch is something to be treated with formality; the strangest emblems, songs, and dances are reserved for these occasions, and though we may stand by, and watch the most lordly ocean palace glide proudly into the waters without further mark of interest or approval than a hastily uttered "Bravo! there she goes!" or "Hip, hip, hurrah!" a Fijian would never dream of launching his skin-covered boat without calling together all his friends and neighbours, and executing a regular war-dance and song over it.

The Indian over his *mussulah boat*, the Egyptian over his *papyrus vessel*, the Russian over his *lodka* (see illustrations 2 and 3), and the Chinese over his *junk*, all perform some sort of rite, whether sacred or profane, and, in Venice, the baptism of the *gondola* is only second in importance to that of the child. No Russian vessel

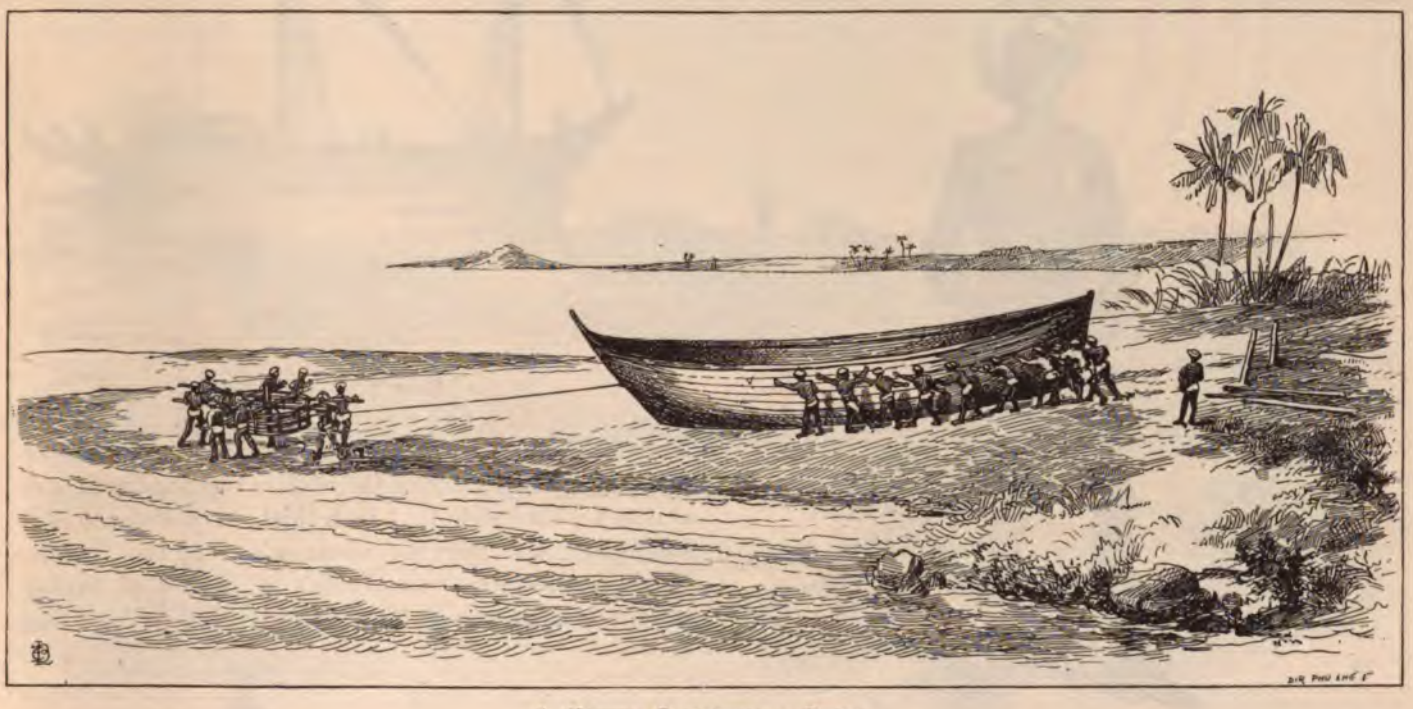
of any moment is launched without all present joining in the singing of the National Anthem; and the Japanese have a curious custom of placing near the masts, when a ship is launched, some sprays of maidenhair fern and a few handfuls of rice; the maidenhair is considered as almost sacred in Japan, and, therefore, is regarded as a sort of presiding deity at the ceremony; while, of course, the rice is, as it always is, looked upon as a means of insuring "good luck" for the vessel. The launching of the *dingys*, the cotton and grain and passenger boats in India, is accomplished in the most extraordinary manner.

I have endeavoured to give some illustrations, but I am afraid even they can scarcely convey the full peculiarities of the ceremony. The boat is really launched by means of an ordinary capstan (see illustration 4). A rope attached to the stern of the dingy is slowly wound round the capstan, and the boat laboriously pushed into the water by this means and the united efforts of some sixteen or twenty natives, who work with their shoulders on each side of the dingy (see illustration 5). The necessary impetus to this labour is contributed by a couple of native drummers, who keep up a constant *tom-tom* throughout the launching (see illustration 5).

The Egyptians must have had some difficulty in launching their ships on the Nile, owing to the sand-drifts, or rather whirlwinds of sand. It is most probable they were built with very little keel, in order to enable them to avoid the dangers of the sand-drifts, and to facilitate their being launched.

The modern Nile boats have a very small keel, particularly at the centre, where it is concave (see illustration 7).

The papyrus boats used by the ancient Egyptians for fishing were so light that Pliny mentions them being easily carried on men's shoulders; not so the war-galleys (see illustration 8), which, like many of the Egyptian boats, resembled those of India, and were launched in the laborious style adopted by the Bengal natives. There have been, doubtless, various methods of launching in use amongst the Ancient Britons, the famous Vikings of Norway, and many other interesting peoples; but it is impossible in the space of a magazine article to treat of these severally, and at any length. Launches, like most enterprises in this world, are not always attended with success, and we are all of us acquainted with the details and circumstances which prevented one of historical renown from being accomplished. I allude, of course, to Robinson Crusoe and his canoe. And there have been other cases of failure, cases where experiments has been tried that have proved fallacies, where there have been grave and serious damage to property, and, worse still, loss of life; as with the *Daphné* on the Clyde some few years ago, a calamity which must still be fresh in many minds. Then there was the experiment of the *Great Eastern*, more than thirty years ago, which proved so unsuccessful that it has never since



5. Natives Launching a Dingy.

been repeated. This huge vessel was launched broadside on. There was great delay and difficulty over the trial of this method, and subsequently another had to be adopted to accomplish the launching of the ill-fated *Leviathan*.

First attempt to launch the Leviathan.—The arrangements for launching the *Great Eastern* were directed by Mr. Brunel. Two inclined ways from beneath her to a distance of 300 feet down the bank of the river, at an inclination of 1 in 12 were planned. These ways were about 120 feet wide; the distance between them being also 120 feet; and the substructure which carried the rails, and upon which the cradles were to



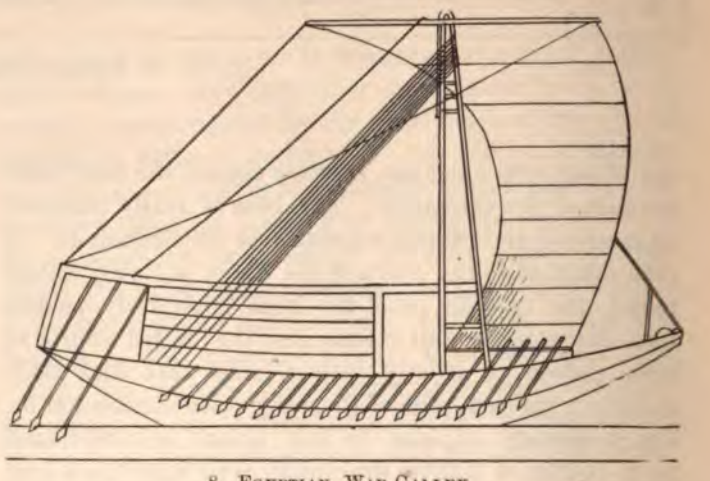
6. Native Drummer.

slide, were of immense strength and solidity. Under each way were driven seven rows of piles; the four outside rows having piles at the distance of every 3 feet, while the three inner rows had them driven only every 6 feet. The piles were forced down to the gravel bed of the river, commencing under the ship's bottom, and extending to low-water mark on the bank. On each side of every row of piles were timbers 12 inches by 12 inches, bolted together, securing the heads of the piles between them, and extending the entire length of each way, the whole covered with concrete 2 feet thick, and above ran the longitudinal timbers of great strength the entire length of the way; placed transversely on the top of these, were timbers of the same strength, but only 3 feet apart, and the whole was securely bolted together, forming one solid structure. Upon this were laid the metals on which the ship was to be lowered. These were heavy bride-rails, similar to those used on the Great



7. Modern Nile Boat.

Western Railway, and were screwed down to the timber roadway. The bottom of the cradles was shod with bars of iron 7 inches wide by 1 inch thick, at a distance of a foot apart, and ran the whole width of the frames. These cradles were constructed of baulks of timber wedged beneath the bottom of the vessel, and resting



8. Egyptian War-Galley.

upon the bars of iron. From these were placed beams and shores strutting against the side of the ship, all firmly bolted together, and ballasted with iron to prevent them from rising with her when she floated. In the centre of each of these frames, on the land side, were two plates

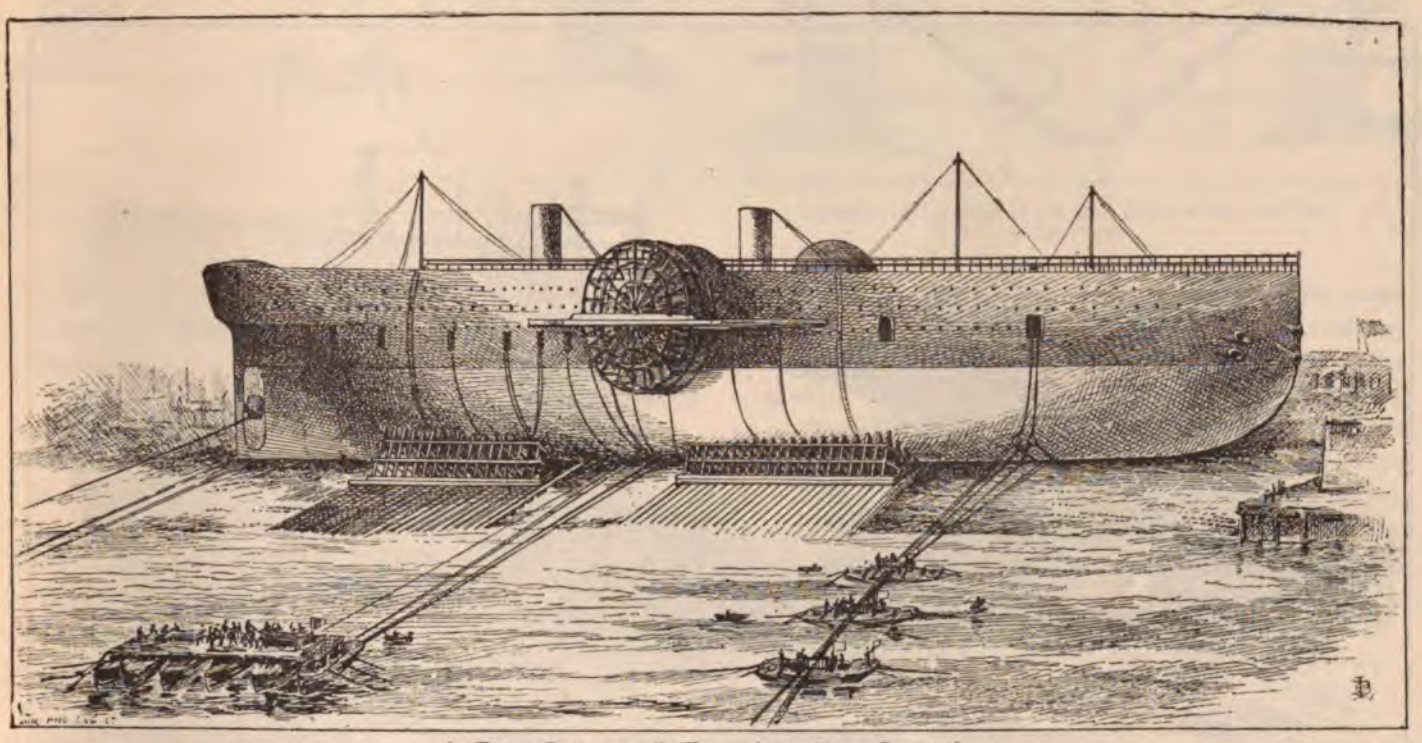
of 1-inch iron securely fixed to them, and carrying between them enormous sheaves, through which ran the chain to be used in checking her when once fairly started.

Chain-drums and checking-gear used at the attempted launch (see illustration 9).—These were situated in front of the centres of the cradles on the shore side of the ship. The drum part of these machines, round which the main chains were coiled, was eighteen feet long by eight feet in diameter, and was connected with the cradles by powerful chains, $2\frac{7}{8}$ inches in thickness of limb, and weighing 5 cwt. to the fathom, passing round double-sheaved iron blocks in the framework of the accident occurred which so influenced the termination of the launch, when their necessity and efficiency in controlling the descent of the ship were so successfully proved.

Floating of the "Great Eastern."—The first Sunday in February (1858) the launching of this "Leviathan" was actually accomplished. The papers of that week literally teem with details of the event, which at one time seemed so improbable that—

> A "Leviathan" afloat
> Lies, a bulwark on the brine,

was often applied to Mr. Scott Russell's noble ship. Saturday was the day fixed for the floating of the vessel,



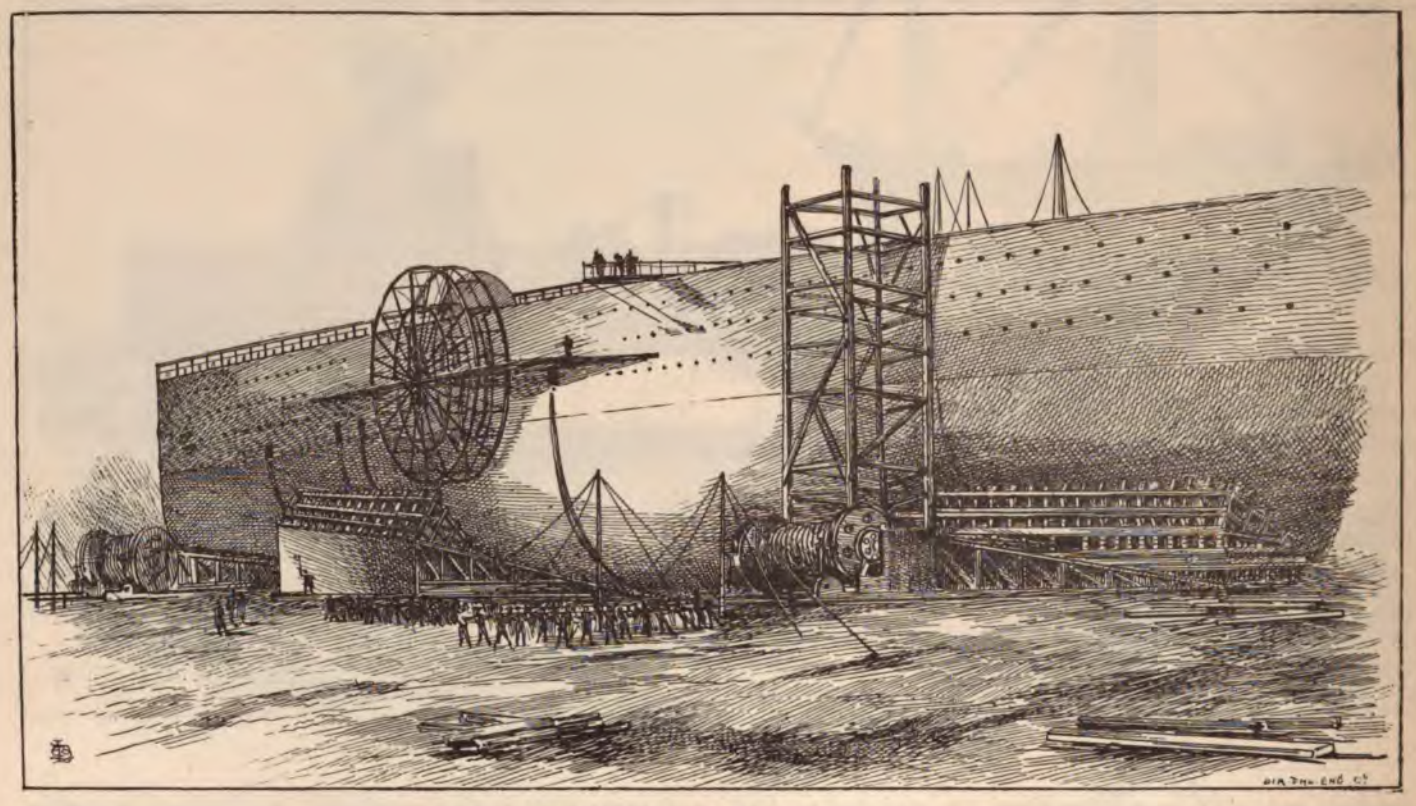
9. The "Leviathan" (First Attempt to Launch).

cradles, and, with brakes, bearings, &c., weighed no less than 60 tons each. They were, without doubt, the largest and most powerful of the kind that had been constructed. The flanges of the barrel which carried the chain served for the brakes; they were about a foot wide and thirteen feet in diameter. Round these were straps of wrought iron, 12 inches wide by one inch thick, which could be tightened up by means of the levers, 15 feet long, and worked by twenty men. The chain, after being carefully wound upon the barrel, was passed through the sheaves, the two lower ones being attached to the cradle; the end was then secured to the timber framing which carried the whole apparatus. In these framings were placed the hydraulic presses which were to start the vessel; and at a small crab at the back of the drum (in the foreground of the picture) and used for winding in the slack of the main chain, the and everything was accomplished that human ingenuity and foresight could suggest, in order to ensure success; but an adverse wind interfered with the set arrangements, and it was deemed advisable to postpone the launch till the following day, when between 12 and 1 P.M., as the flood relieved the weight upon the launching ways, some of the hydraulic machines were set to work for the last time, to push the vessel as far as possible into the river. She moved easily, and with such a low rate of pressure that a short time gave her an advance of 80 inches, which showed that more than half her cradles were quite pushed off the ways, and rested on the river bottom. At half-past one the men in the row-boats stationed alongside observed that she no longer rested on the cradles—that she was, in fact, afloat; but the transition was so gradual that few were aware of it until the tugs began steaming ahead, and showed that at last she was

fairly under way. Two powerful tug-boats were at her bows and two were fastened astern; other steamers also were in attendance, and rendered their aid. The progress of the vessel continued most satisfactorily for several minutes, when, unfortunately, the outward paddle came into contact with some lighters which had been employed in the earlier stages of the launch, and its further progress was impeded until they were removed, an operation of considerable difficulty; and one of the barges had to be scuttled and sunk before a proper passage could be secured, and the tugs again set in motion. The mighty ship, now gliding smoothly, stood across the river, and, upon reaching her proper position, first moved, there were only 14 feet of water at the bows, and when moored she registered 16½ feet aft, and 14 feet 11 inches forward, within six inches of the amount calculated.

I do not remember any other instance where the church bells rang in honour of a launch, but then it is not often a Sunday ceremony; on this occasion a merry peal was rung out from the Deptford and Millwall churches.

The *Independencia* was another case where the mode of launching adopted proved ineffectual; four launching ways were here used instead of the customary two. The vessel was started and ran about half-way down the slips, and



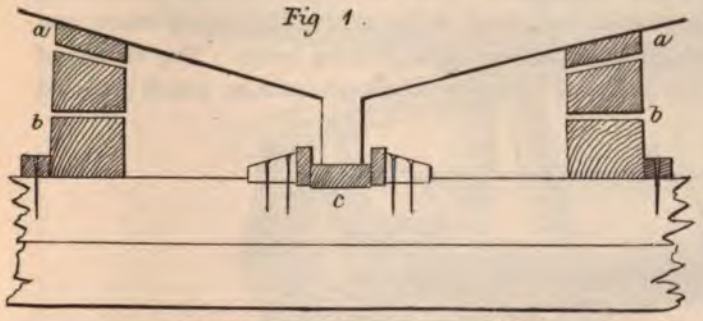
10. Successful Launch of the "Leviathan."

she was secured to the Government moorings which had been destined to receive her. During the progress of the vessel an extraordinary scene took place. When her stern cradle had been relieved from the great weight which had reposed upon it, the immense timbers parted and darted above the surface of the water, point upwards, like shoals of springing porpoises. Another incident attracted considerable attention, and at first caused some amount of unnecessary alarm. The immense chains which had held the vessel on land were one by one released, and as they glided through the *hawes-holes* they created a sound like heavy peals of thunder, which, until the cause was ascertained, induced people to believe that some accident had occurred, or some part of the tackle given way. When the vessel then stopped and could not be moved. As the tide fell, the after part of the slips gave way, the vessel fell some feet, sustaining very serious injury. Probably the cause of the accident was want of solidity in the launch, and care in carrying out the arrangements, combined with a rather small inclination of slips, which I believe was only 5¼ inch per foot, and without camber.

It is recorded that upon one occasion, our sailors having taken possession of an enemy's arsenal, and finding a vessel on the stocks nearly completed, they removed the shores from one side, and tried to upset her by wedging up the shores on the other side, but were unable to do so. There appears, therefore, to be no valid objection to the cheaper and more ready method of launching on the keel. It is much practised

in the merchant yards of this country, and has long been in use in the French dockyards. The annexed figure (see Fig. 1) represents this method. The two pieces (*a a*), which are shown in the figure as being secured to the ship's bottom, are the only pieces which need be prepared according to this system for each ship, the whole of the remainder being available for every launch. A space of about half an inch is left between them, as it is not intended that the ship should bear on these balk timbers in launching, but merely be supported by them in the event of her heeling over. The ship, therefore, is launched wholly on the sliding plank (*c*), fitted under the keel.

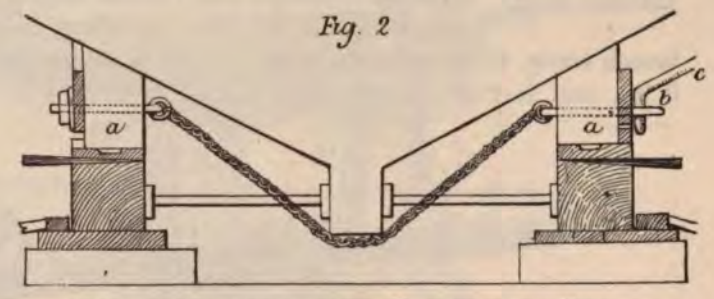
Fig 1.



METHOD OF LAUNCHING ON THE KEEL.

If a ship is coppered before launching, so that putting her into a dry dock for that purpose becomes unnecessary, it is then desirable that she should be launched without any cleats attached to her bottom. This method of fitting the launch, as represented in Fig. 2, is then adopted for this purpose. The two sides of the cradle are prevented from being forced apart, when the weight of the vessel is brought upon them, by chains passing under the keel. Each portion of frame-work composing the launch has two of these chains attached to it and brought under the keel to a bolt (*a*) which passes slackly through one of the poppets, and is secured by a long forelock (*b*), with an iron handle (*c*) reaching above the water-line, so that when the ship is afloat it may be drawn out of the bolt. The chain then draws the bolt (*a*), and in falling trips the cradle from under the bottom. There should be at least two chains on each side to the stopping up, and this only for the launch of a small ship; in larger ships the number will necessarily be increased according to the weight of the vessel and the tendency she might have, according to her form, to separate the bilgeways. This tendency on the part of a sharp ship by a rising floor, or by her wedge-shaped form in the fore and after bodies, is great; but there is not much probability of a ship heeling over to one side or the other. This may, therefore, be considered to be the safest, cheapest, and easiest mode of launching long, sharp ships.

Fig. 2



METHOD OF LAUNCHING ON THE KEEL WHEN THE SHIP IS COPPERED.

(*To be continued.*)

NAVAL AND MILITARY NOTES AND QUERIES.

RELIGIOUS DENOMINATIONS of the N.C. Officers and men serving at home on January 1, 1887:—

Church of England, 66,475; Presbyterians, 7,983; Wesleyans, 4,721; other Protestants, 623; Catholics, 17,825; not reported, 474. Total, 98,101.

EDUCATIONAL ACQUIREMENTS of the N.C. Officers and men serving at home on January 1, 1887:—

Non-readers or writers, 2,812; readers, but not writers, 1,670; writers, but not readers, 1,251; writers and readers only, 14,192; numbers holding fourth class certificates, 26,393, third class, 16,658, second class 17,974, first class, 699; not holding certificates at all, 15,967; not reported, 485; total 98,101.

EFFECTIVE STRENGTH of the regular army, by arms, during the year 1886.—Household Cavalry, 1,320; Cavalry of the Line, 17,416; Royal Horse Artillery, 4,216; Royal Artillery, 29,387; Royal Engineers, 6,140; Foot Guards, 5,983; Infantry of the Line, 130,727; Colonial Corps, 2,298; Commissariat and Transport Corps, 2,870; Ordnance Store Corps, 684; Corps of Ordnance Artificers, 48; Medical Staff Corps, 2,716; total, 203,805.

QUICK'S BREECH-LOADING GUN.

THIS is the breech-loading gun of Mr. George Quick, late fleet engineer, which is being introduced by the Quick Ordnance Company, of Victoria Mansions, Westminster. The gun is of steel, measures 9 ft. 1 in. in length, and weighs 1,591 lbs., including the breech screw, which weighs 50 lbs. It has a calibre of 3 in., and is rifled uniformly in fifteen grooves, with one turn in twenty-seven calibres. The breech mechanism consists of a breech screw, which is fitted into a recess formed at the rear of the powder chamber at right angles to the bore, and in a horizontal line with the trunnions. The rear end of the breech-screw is fitted with a lever, by which the screw can be partially rotated and slid to the left in the recess, thus opening the breech for loading. It will thus be seen that there is but one combined motion to open the breech for loading, and to close it again for firing, this being a simple quarter-turn of the lever from right to left, and the sliding of the breech-screw a few inches in the same direction. This, however, is not all that is accomplished by this motion, for there is a self-cocking rebounding percussion lock fixed in the axis of the breech screw, and which is actuated by the locking lever. The striker of this lock acts upon the percussion primer, which is placed in a chamber formed in the rear end of the breech screw. On opening the breech, the primer chamber is also opened, the fired primer extracted, and the firing lock placed in a safety position. This firing mechanism

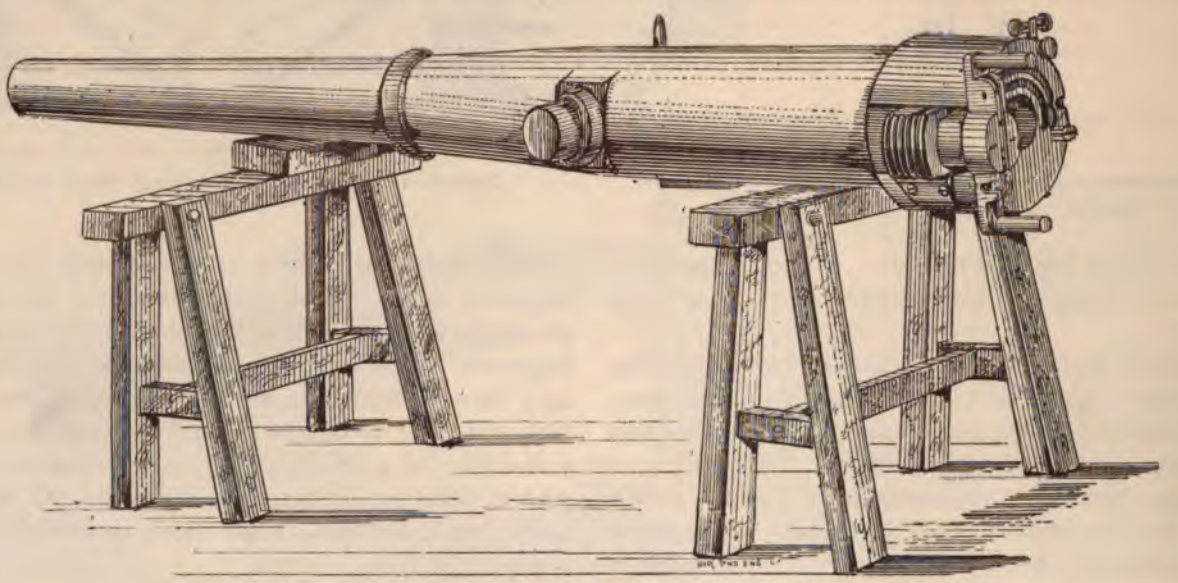


FIG. 1.—Showing Breech open ready for Loading, fitted with Rapid-firing Mechanism.

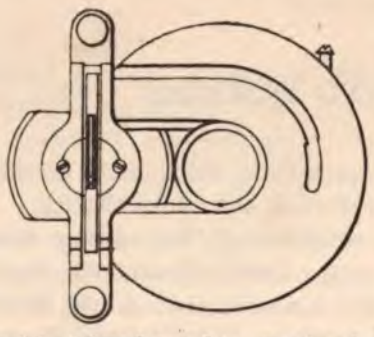


FIG. 2.—Elevation of Breech complete, opened ready for Loading, as fitted with Rapid-firing Mechanism.

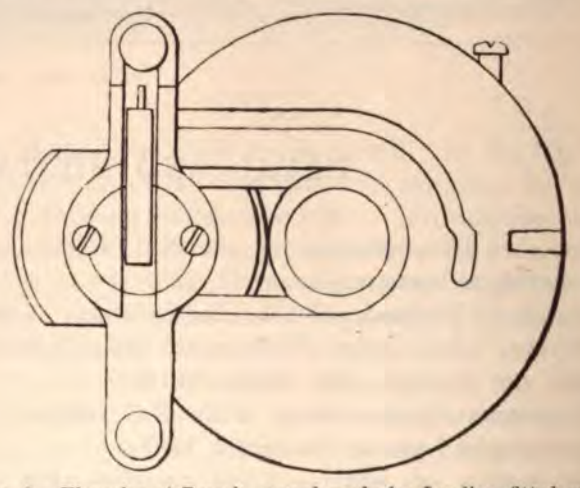


FIG. 3.—Elevation of Breech, opened ready for Loading, fitted with Percussion and Electric-firing Mechanism.

bag are inserted in the usual way in the powder chamber, and the flash of the primer passing down the central hole of the charge ignites the powder from the centre, and the ignition travels radially towards the walls of the chamber, thus setting up a uniform and gradual pressure upon the gun.

Such are the gun and ammunition which were recently tried at Messrs. Easton and Anderson's works at Erith

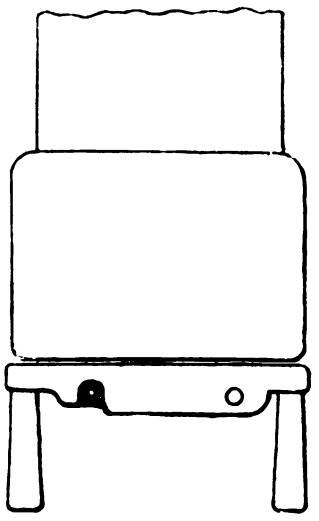


FIG. 7.—Plan of Gun Breech closed ready for firing, fitted with Rapid-firing Mechanism.

in the presence of a number of military and naval officers. There were present among others upon the occasion: General Tupper, R.A., Commandant at Woolwich; General Philpotts, R.A., formerly Inspector-General of Artillery at the War Office, Colonel Gilbert, C.B., R.A., Major Hext, R.A , Captain Francis, D.C.L.I., Captain Boyes, R.N , Lieut. Elton, R.N., Lieut. Kingsford, R.N., Mr. James Ferguson, Inspector of Machinery, R.N.; Mr. George Hext, Imperial Chinese Customs;

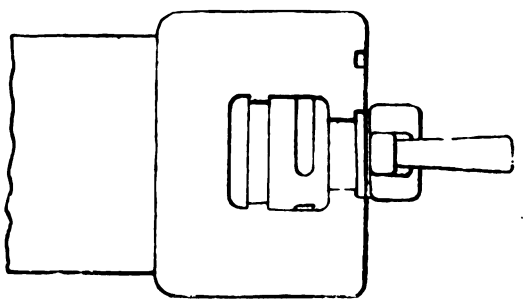


FIG. 9.—Elevation of Left Side of Gun Breech, closed ready for Firing.

Mr. William Anderson, C.E., and Mr. Sykes, C.E., representing Messrs. Greenwood and Batley, of Leeds, who made the gun. The experiments were carried out by Mr. Quick and Mr. W. Raleigh Gilbert. The visitors first inspected a Woolwich 5-inch breech-loading naval gun, which, it was seen, required five motions to open the breech, and six to close it, irrespectively of inserting the primer, cocking the lock, and hooking the lanyard, a separate tool being used to extract the exploded primer. This gun is mounted on a hydraulic recoil storage carriage designed by Mr. Anderson. In this ingenious carriage the recoil acts upon a ram by which water is forced from one cylinder into another, where it acts upon 57 pairs of disc springs which become compressed.

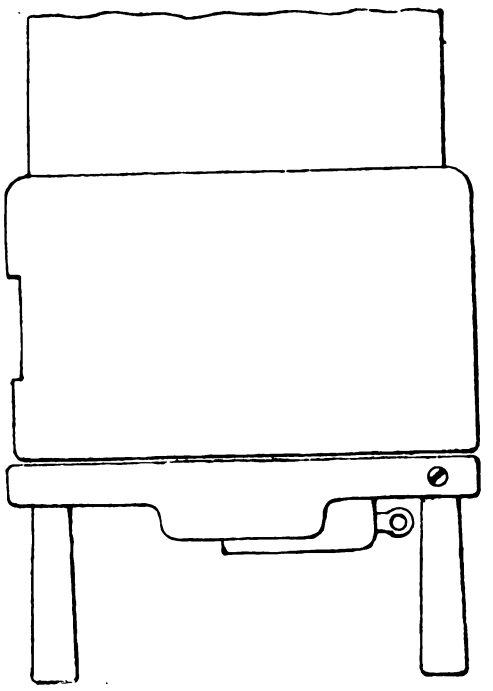


FIG. 8.—Plan of Breech closed ready for Firing, fitted with Percussion and Electric-firing Mechanism.

The gun during recoil is run down from the firing position, and the stored-up energy is utilized in running it up into firing position again. A carriage on this principle is about to be constructed for the Quick gun. This latter weapon was first worked by Mr. Quick for rapidity with the rapid-firing breech-mechanism and dummy cartridges

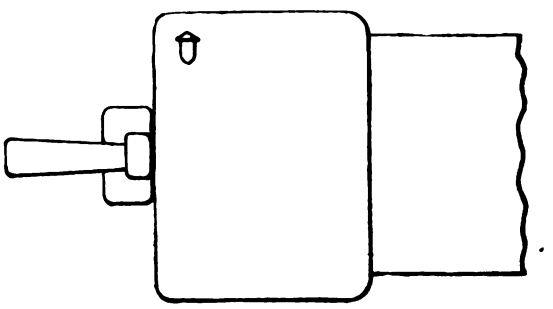


FIG. 10.—Elevation of Right Side of Gun Breech closed ready for Firing.

and projectiles. The average number of rounds got off was 12 per minute, without aiming. The slow-firing breech arrangement was then substituted, and four rounds were fired into the butt with a view to testing the gas-check. The first round consisted of 6½ lb. of Quick's compressed cake powder, made up as already described, and a 12¼-lb. blind shell. A wrought-iron gas-check was used, and an escape of gas resulted. The

second round was with 6¾ lb. of powder and a 12¼ lb. shell, gas still being found to escape. The third round was fired with 6½ lb. of powder and a 12¼ lb. shell, a copper gas-check being used, with the result that there was no escape of gas. This round was interesting, in view of ascertaining velocities and pressures. For this purpose a Boulengé chronograph was used, two wire screens being set up, one 30 ft. from the muzzle of the gun and another at the entrance to the butt, 120 ft. from the first screen. Solid shot were used, the base of

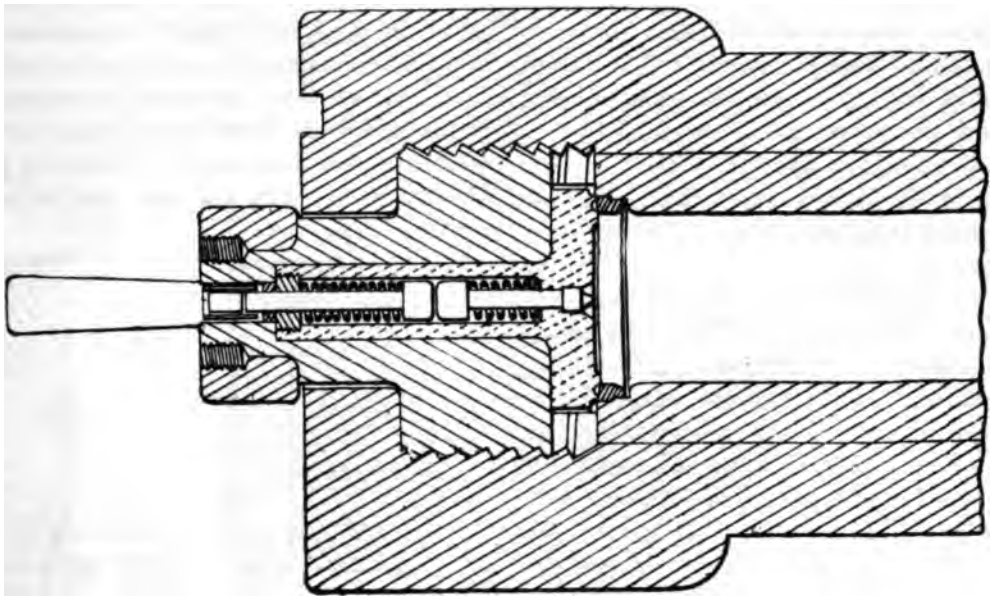


FIG. 11.—Longitudinal Vertical Section of Breech with Rapid-firing Breech Action, for Use with Self-consuming Cartridges and Self-consuming Primers.

that it afforded an opportunity of testing the firing arrangement. The first pull at the lanyard failed to explode the primer, the lock being simply snapped. A second and third pull gave no better result, but at the each being fitted with a crusher gauge. As a somewhat high powder pressure had been anticipated, owing to the small amount of air spacing allowed to the charge, the copper cylinders of the pressure gauges had been

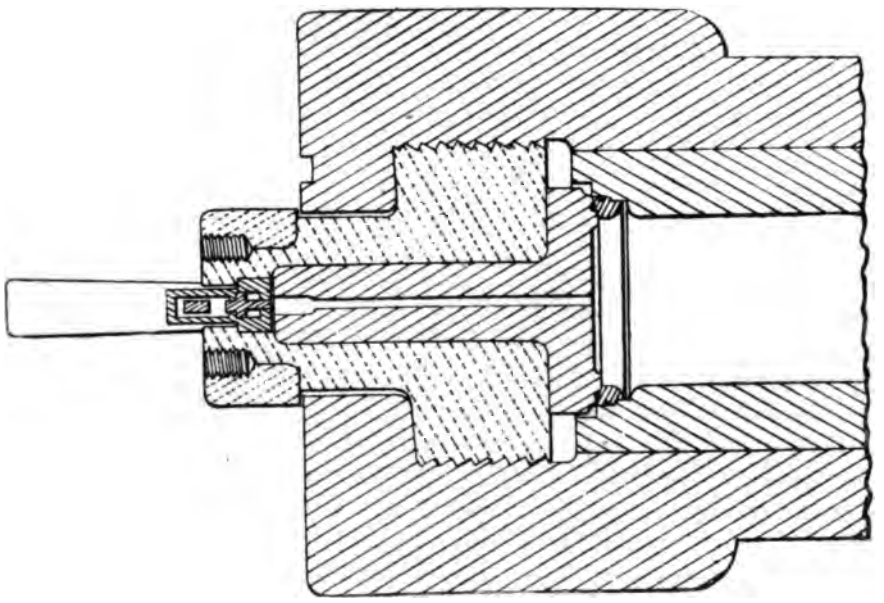


FIG. 12.—Longitudinal Vertical Section of Breech, fitted with Percussion and Electric-firing Mechanism.

fourth the gun was fired. In the fourth round 6½ lb. of powder and a 12½-lb. shell were used with a steel gas-check, there being no gas escape.

A second series of experiments was made with the adjusted to register any pressures over 14 tons to the square inch. It was found, however, on examination of the gauges after firing that only one of the cylinders had been compressed, and that to the extent only of

the one-thousandth part of an inch. It is thus evident that in the other cases the pressures did not exceed, if even they reached, 14 tons per square inch. The first round of the new series was fired with 6½ lb. of Quick's compressed cake powder of 1·815 density and a 12-lb. shot. Owing to a misadventure the velocity was not recorded. The gauge, however, showed that the pressure had not exceeded 14 tons per square inch. Round No. 2 was a repeat of No. 1, the observed velocity being 2,050 ft. per second, the pressure not exceeding 14 tons per square inch. Round No. 3 was fired with 5 lb. 9 oz. of powder of 1·77 density and a 12-lb. shot. The observed velocity was 2,000 ft. per second. The pressure could not be ascertained, as this shot broke up by striking against another in the butt. Round No. 4 was fired with 5 lb. 8 oz. of powder of 1·75 density and a 12-lb. shot. The observed velocity was 2,145 ft. per second, and the pressure 14·05 tons per square inch. The actual muzzle velocity of this shot was no less than 2,180 ft. per second. The fifth and last round was fired with 6 lb. 2 oz. of mixed powder of 1·75 and 1·77 density, and a 12¼-lb. shot without a crusher gauge. The observed velocity was 2,130 ft. per second, and the muzzle velocity 2,164 ft. per second. In this series a steel obturator was used, and in no case was there any sign of an escape of gas.

In order to fully realise the value of these results, it is necessary to compare them with those obtained by the Woolwich 6-in. gun of the latest pattern. The following figures are, therefore, extracted from the Ordnance Committee Minutes, pages 530 to 618 :—

Six-inch Breech-loading Gun.

Charge.	Shot.	Velocity.
55 lb.	100 lb.	1,977 ft. per second.
55 lb.	100 lb.	1,981 ft. ,,
55 lb.	100 lb.	1,989 ft. ,,
55 lb.	100 lb.	1,987 ft. ,,

It will thus be seen that, while in the 6-in. gun it takes a powder charge equal to 55 per cent. of the weight of the projectile to produce a velocity of 1,989 ft. per second; in the Quick gun, with a charge of Quick's powder equal to less than 46 per cent. of the weight of the projectile, the velocity is nearly 200 ft. per second greater. Looking at the pressures obtained, it would appear that the Quick cake powder has given exceptionally satisfactory results as compared with the selected pebble powder used in the 12-pr. Woolwich gun, which gives a mean pressure of 14 tons per square inch with a charge of powder of only 4 lb., and a muzzle velocity of only 1,705 ft. per second. It is to be borne in mind that this is the first gun made on this principle, and it must, therefore, be looked upon as a purely experimental weapon.

We feel bound to call attention to the immense advantage of this breech mechanism over the French or de Bange system, in consequence of the breech-screw not having to be withdrawn from the gun and swung on one side. It is a well-known fact that it is impossible to open or close the breech of guns on the French system when the guns are elevated or depressed a few degrees, and that consequently much time is lost in bringing the gun level, so that the breech-screw may be withdrawn or inserted in its place. In the Quick system the breech-screw is not withdrawn at all from the gun, but simply slidden on one side, and this can be easily done whatever may be the angle of elevation or depression. Another advantage of this system is, that much less length is taken up behind the powder charge by the breech mechanism than the French and German breech mechanisms occupy, and furthermore no additional space is required in the rear of the gun for the breech-screw to be swung clear of the powder chamber, which in the French system forms a most objectionable feature.

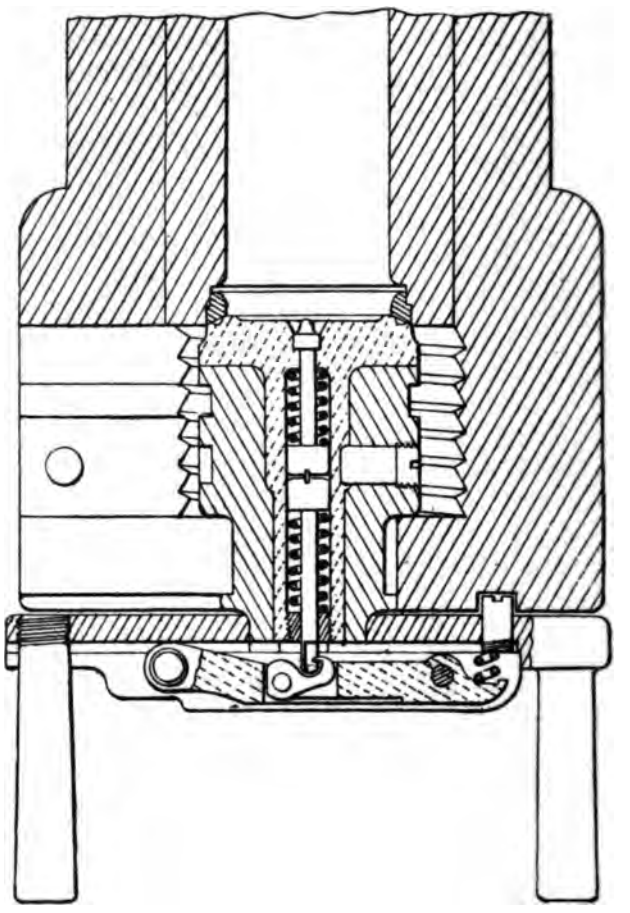


FIG. 13.—Horizontal Section at A—A Fig. 5, showing the Breech closed ready for Firing. (Rapid-firing Mechanism.)

Furthermore, in the Quick system, loading trays for running the projectile and powder charge into the gun

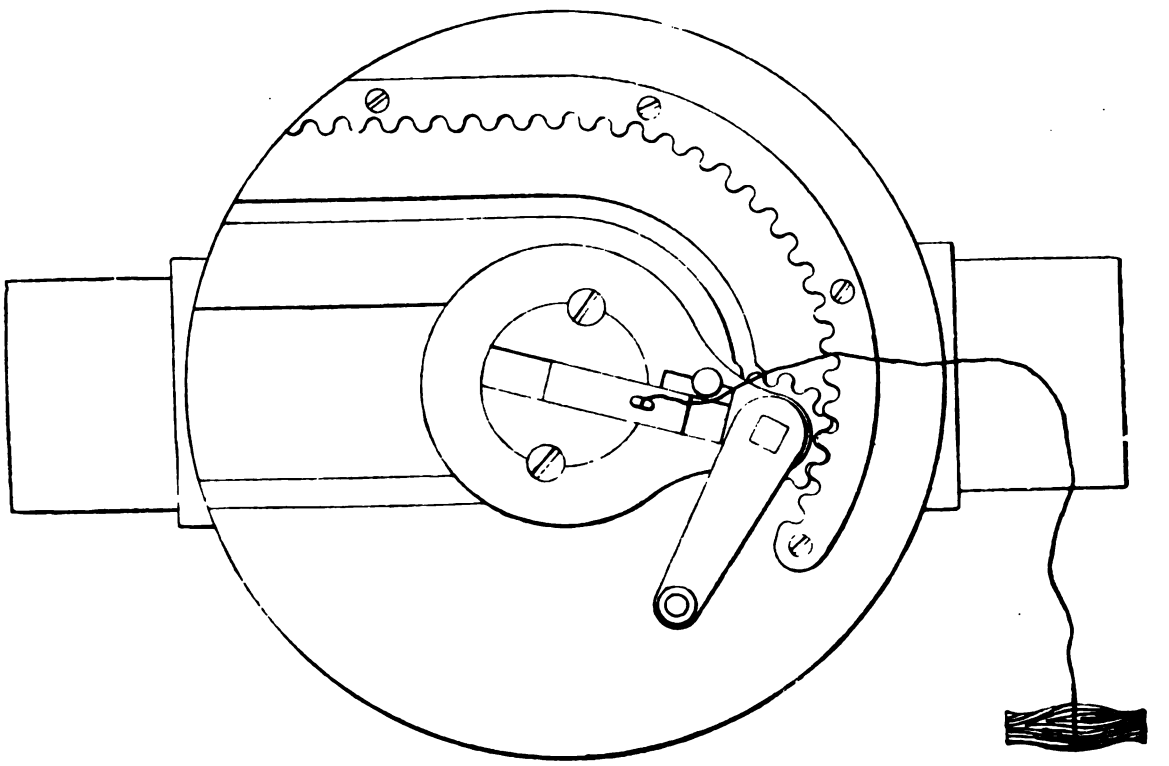


Fig. 4.—Elevation, showing Breech Mechanism for Rapid-firing Guns of 20 to 50 tons weight, Hand Power only. Crank, Pinion, and Rack Gearing.

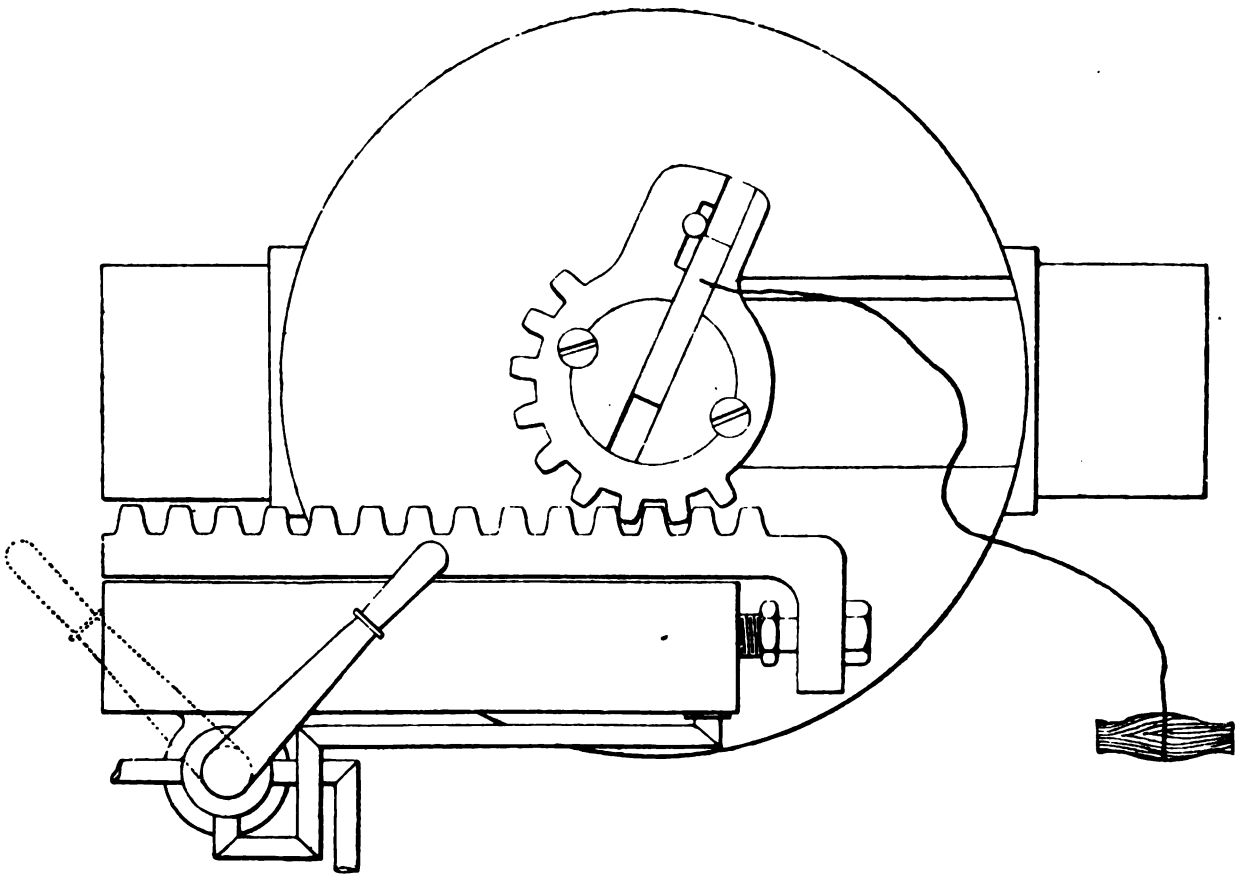


Fig. 15.—Elevation, showing Breech Mechanism for Rapid-firing Guns of 50 to 200 tons weight, Hydraulic, Pneumatic, or Hand Power.

are not required, which is another very great advantage which this system possesses over the Woolwich, Elswick, and French guns.

There are points of detail upon which Mr. Quick still sees his way to improve, and it is, therefore, reasonable to expect that future guns constructed upon his system will be even more successful than the present one. As it is, however, so far as present experience has shown, the gun largely conforms to the following conditions, viz. :— (1) strength, durability, and simplicity of construction; (2) simplicity and ease of working; (3) safety in loading and firing; (4) great rapidity of fire under all circumstances; (5) precision, penetration, and range, equal or superior to any other gun; and (6) facility for speedy repair when hit by a shot or worn by long use. It is questionable whether these qualities are possessed by any one gun now in use, and it remains to be seen whether or not guns possessing all these essential qualities cannot be produced in this country instead of our having to copy from and improve upon those of other countries, and that, too, without attaining the desired end.

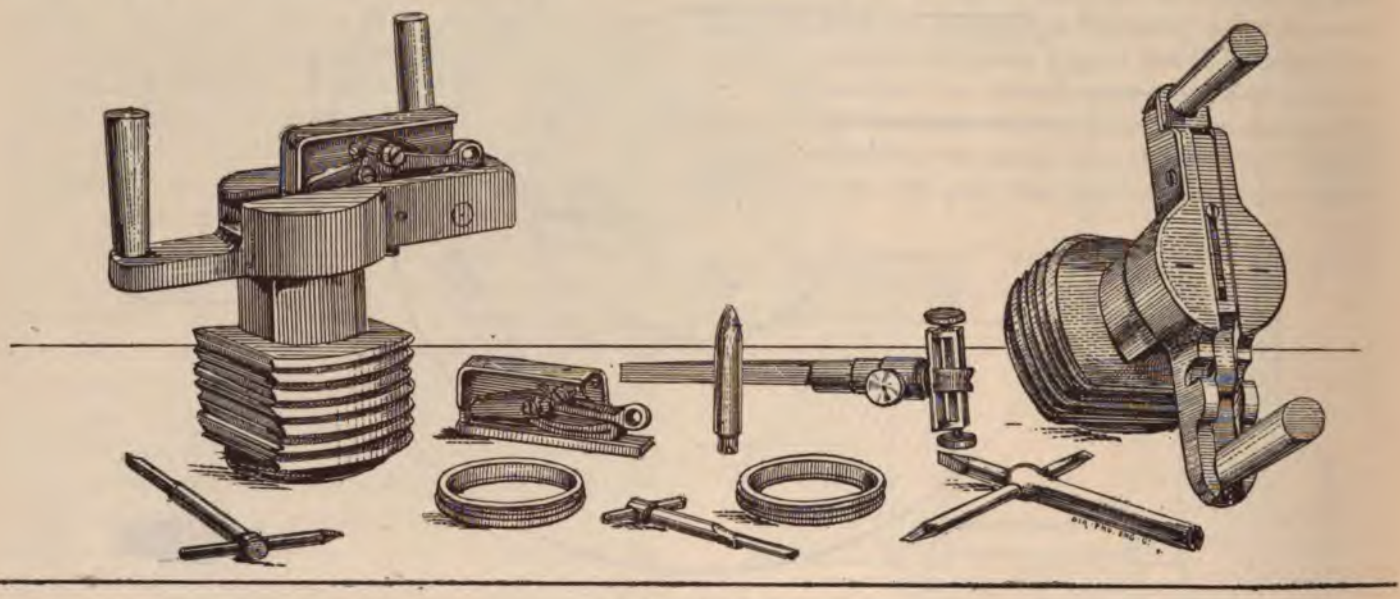


FIG. 16.

Breech Screw with Percussion Lock Arrangement, suitable for using Vent Sealing Percussion or Electric Firing Tubes.

Sights, Spare Gear and Complete Set of Tools for Disconnecting all parts of Breech Mechanism for repair

Breech Screw fitted with Rapid-firing Gear.

MODERN TACTICS.

By CAPTAIN H. R. GALL, Late 5th Fusiliers.

CHAPTER X.—Defiles.

DEFILES are long or short, with flanks accessible or inaccessible. A long defile, with inaccessible flanks, if scientifically defended, even by a numerically inferior force, may be looked upon as an almost impassable obstacle; *i.e.* a causeway of considerable length, or a gauge through precipitous heights inaccessible to infantry, if defended in rear with guns and infantry posted so as to command the passage and the exit, cannot, in these days of arms of precision, be forced without an expenditure of life too appalling to contemplate. Such passages, if they cannot be turned or surprised, may be deemed impassable.

A short defile with open though inaccessible flanks, such as a bridge or a ford over a river, so long as the actual passage remains under the aimed fire of the defenders' guns or entrenched infantry, will rarely justify an open assault.

History affords instances of bridges of considerable length having been forced in the presence of highly-trained and disciplined troops; but since the days of Lodi and Arcola, owing to the increased accuracy of fire-arms, unless the defenders' artillery and rifles are both silenced and compelled to withdraw out of range, an open frontal assault in column can hardly be expected to succeed.

For the defence of defiles with long and inaccessible flanks (*vide* Plate I., Figs. 1 & 2).

Circumstances may arise which necessitate a causeway, a bridge, or a mountain defile with heights inaccessible being held in front; for instance, to enable reinforcements to come up, or troops still outside to reach the passage.

Such instances most frequently occur during a retreat, when the entrance to a defile with inaccessible flanks may have to be guarded to enable the rear-guard to be withdrawn in safety from a position it has been holding in front of it, to prevent the enemy following up a retreating force, and attacking it before it has entered the defile, or during its passage. Nevertheless after covering the withdrawal of any troops outside, the main defence would still generally be in rear.

The chief danger to be apprehended is that the defence in front may be prolonged so as to enable the assailants to enter and issue from the passage in contact with the last of the covering party, and thus nullify the defence of it from the rear (*vide* Plate I., Figs. 3 & 4).

Flanks Accessible.

Defiles with flanks accessible must be defended from the flanks at the entrance, as the assailants will direct all their efforts to securing the flanks, before entering the passage which they command.

For defence of a defile with flanks accessible (*vide* Plate II, Fig. 1).

The attack on a mountain defile with accessible flanks, if they cannot be turned, will be more or less costly, according to the command, and cover afforded to the defenders posted to sweep the approaches, and will be characterized by the drawbacks incidental to all front attacks.

Hollow roads, railway cuttings, &c. constitute defiles of a minor description, and must be defended on the flanks which are more or less easily accessible.

Narrow lanes, especially if they are deep, can best be obstructed by cutting down trees and laying them across.

Embankments may be classified as causeways of minor descriptions. A deep transverse cutting will cause a considerable amount of delay, and the material or earth taken out can easily be distributed so as to be difficult to collect again; and in such situations trees, planks, &c. wherewith to bridge the chasm, are not often procurable.

Bridges and Fords

are defiles, but their defence depends greatly upon the width of the river, and on local conditions. A bridge is easily defended when it is low down in a re-entering bend, and when the defender's side commands the other, and the enemy's side does not possess good cover.

The defence of a bridge, or a ford, will be influenced chiefly by the following three considerations.

1st. Cover on the defenders' side.

2nd. Cover on the assailants' side.

3rd. Cover on both sides, as in the case of a river running through a town, or village.

In the first instance the main defence would usually be from the cover on the defenders' side, from which they would endeavour to prevent the assailants getting down to the bridge, and oppose them vigorously during any attempt at actual crossing (*vide* Plate II., Fig 2).

In number two the defenders would (unless they commanded the other bank) retire some distance, and take

Defence
of a Mountain Defile with Inaccessible Flanks.

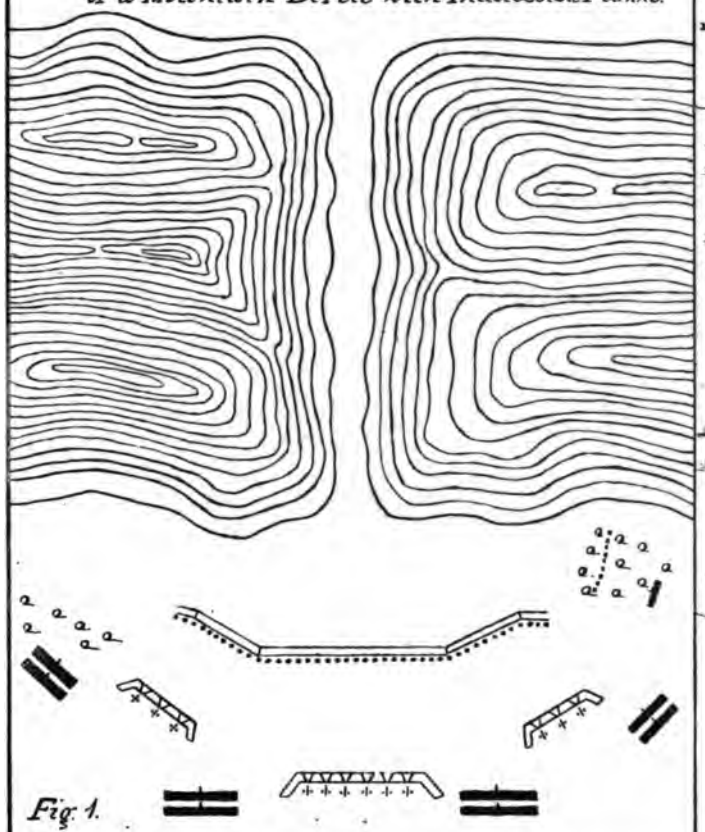


Fig. 1.

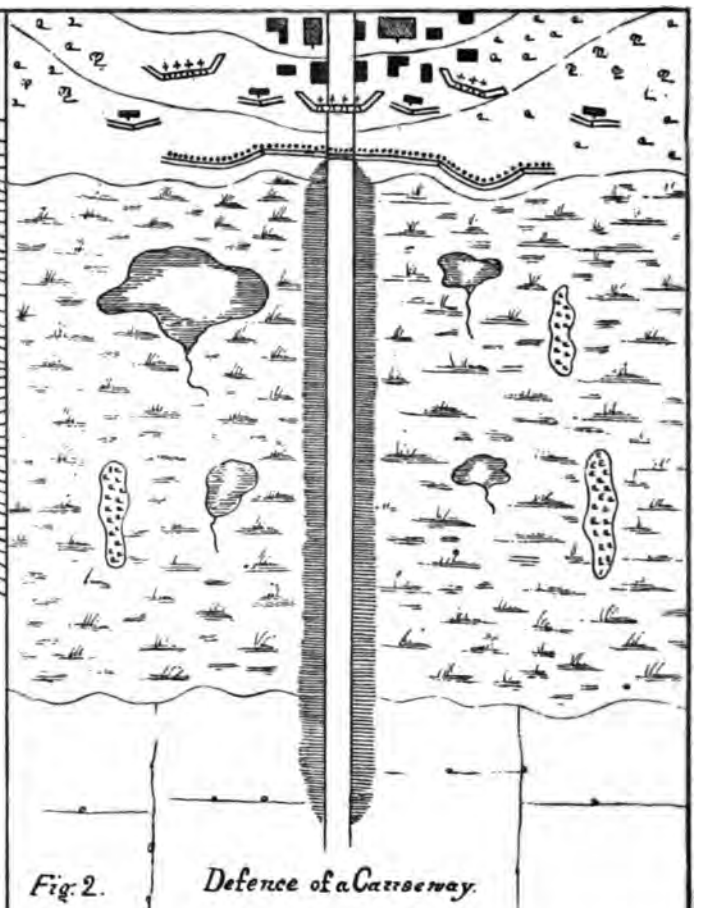
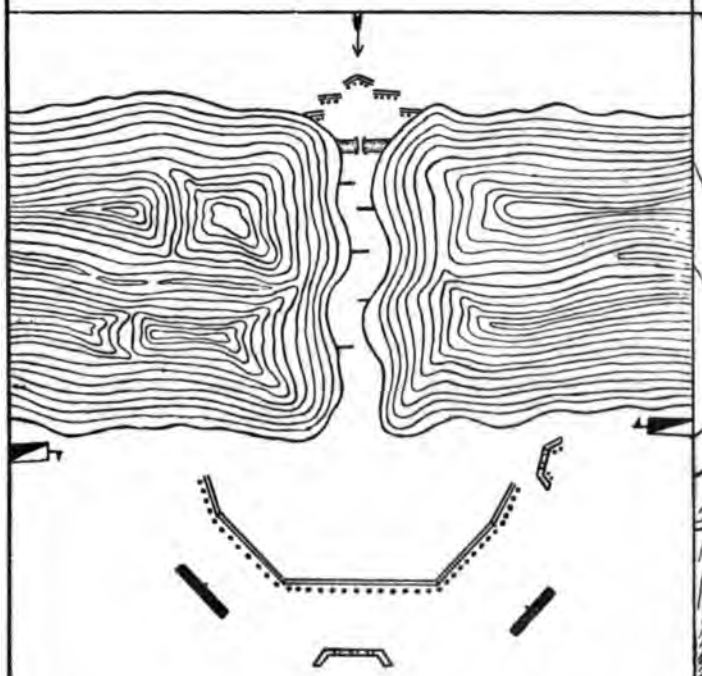
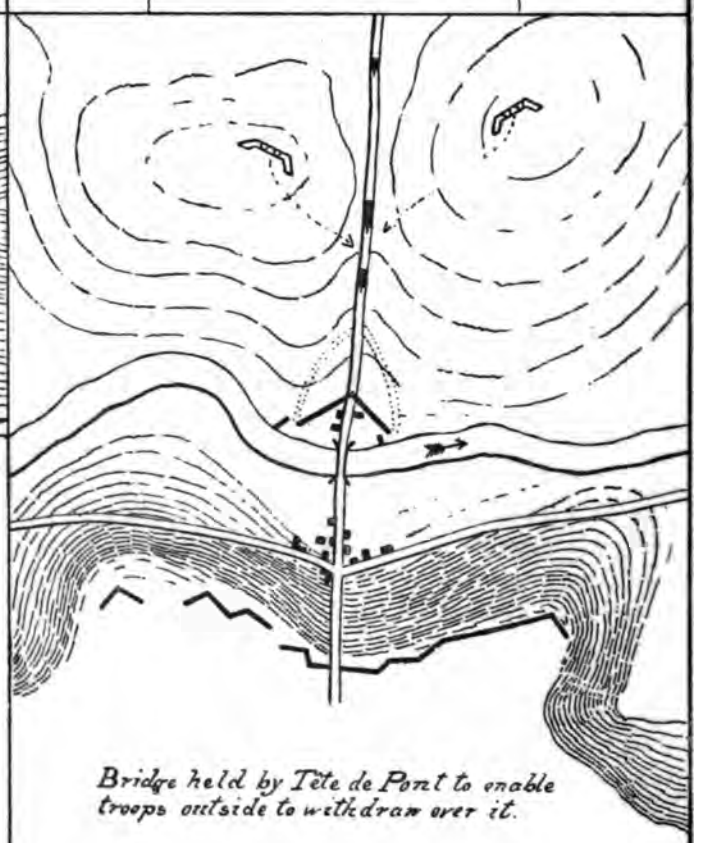


Fig. 2. Defence of a Causeway.



Defile
heights inaccessible, held in front to enable troops still outside to reach the passage.

Fig 3.

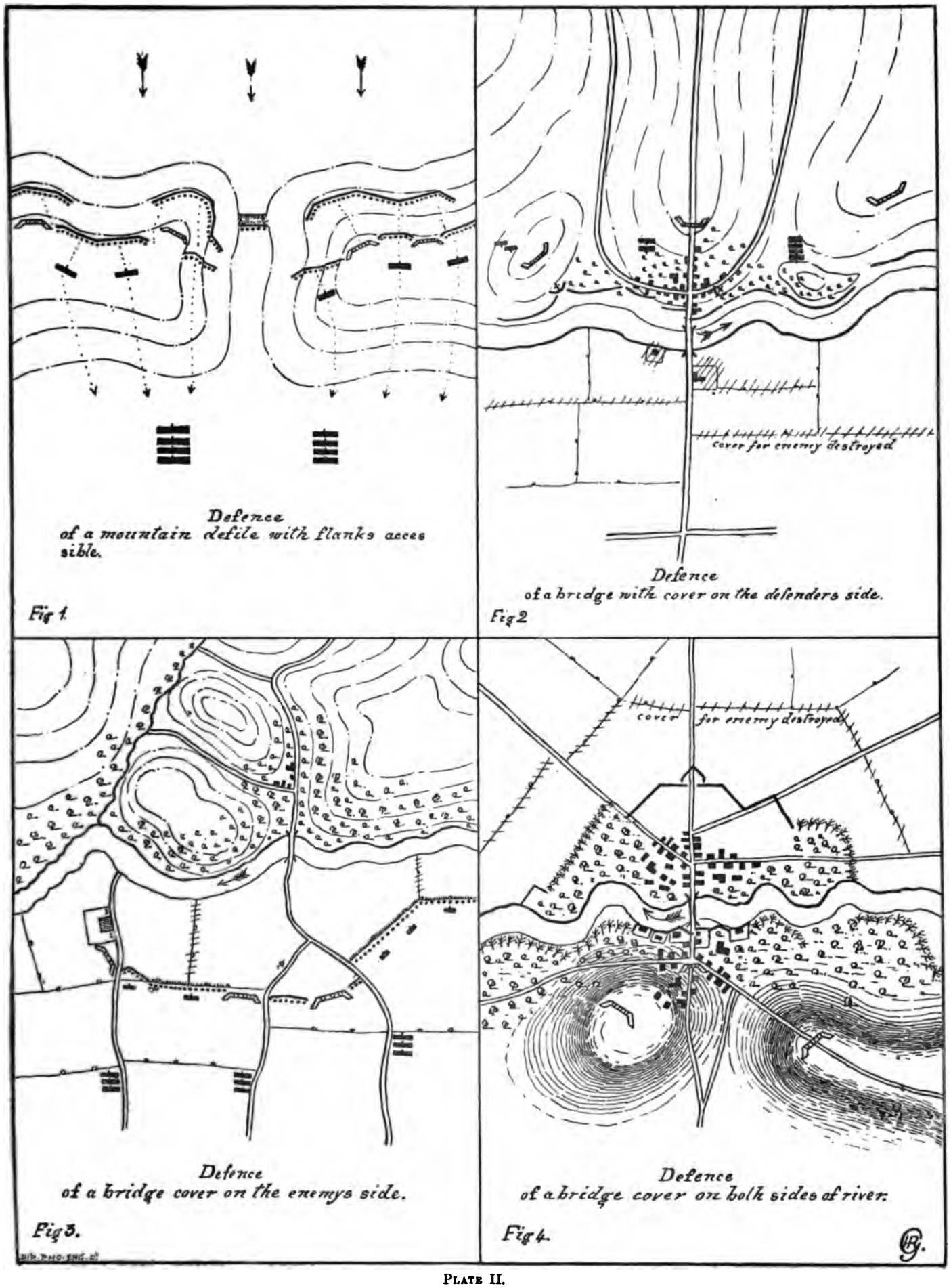


Bridge held by Tête de Pont to enable troops outside to withdraw over it.

Fig 4.

DIR. PHO. ENG. Co.

PLATE I.



Defence of a mountain defile with flanks accessible.

Fig 1.

Defence of a bridge with cover on the defenders side.

Fig 2

Defence of a bridge cover on the enemys side.

Fig 3.

Defence of a bridge cover on both sides of river.

Fig 4.

PLATE II.

up an entrenched position so as to command the bridge, and the exit from it, and thus endeavour to nullify the advantage of the cover possessed by the assailants (*vide* Plate II., Fig. 3).

In number three the defence would be in front of the bridge first, and afterwards behind; every advantage being taken of the cover afforded by the houses, enclosures, &c., to prevent the enemy approaching the bridge (*vide* Plate II., Fig. 4).

If likely to be overwhelmed and obliged to retreat, the defenders must be careful to retire in time to get across the bridge safely before the assailants can rush it, or bring their guns to play upon it. There are then two courses open to the defenders, viz. to blow up the bridge, or defend it from the rear; if they are expecting reinforcements and want to use the bridge, the latter course will be adopted, *i.e.* if the nature of the second position justifies the attempt to cope on more equal terms as regards cover with an enemy who has already overcome serious obstacles. It is a useful maxim to be borne in mind at all times, that troops falling back are difficult to rally, and should not, if avoidable, be called upon to defend a second position. If reserves are available it is advisable to let the old fighting line (if it has suffered much) fall back, and form up in reserve of a new one composed of troops who have not been seriously engaged.

General Skobeleff is credited with having said, that every army is composed of three classes of men, viz., the very brave, moderately brave, and cowards. And it is a question which cause a commander most trouble, the recklessly brave soldiers, or the cowards; and what he has to consider is the normal amount of endurance of an average man. Strict discipline is the best safeguard against man's inherent fear of death; hence we find the Prussians enforcing what they call "Fire discipline," to an extent unknown before the introduction of the breech-loading rifle.

A defile in a military sense is any combination of country or circumstances which obliges a force to march with a tactically restricted front in proportion to its strength. Hence, defiles of all descriptions are dangerous obstacles when within striking distance of an enemy.

On the other hand, in the possession of the defenders they often enable an inferior force to bar the way to a much stronger one. The famous line,

> In yon straight path a thousand might well be stopped by three,

under certain circumstances may still be applicable, although the weapons of modern war necessitate, in a manner not intended by Macaulay when he wrote his *Lays of Ancient Rome*, that

> Men fight, not as they fought in the brave days of old.

Belligerents now only arrive at the stage where their forefathers commenced a battle, after facing war's leaden hail passively for several hours, or advancing over a fire-swept zone for a distance varying from three miles to within charging distance.

CHAPTER XI.—Convoys.

Perhaps no part of a soldiers' work during a campaign of any duration is less genial than convoy duty, it is often dangerous, at all times tedious, and few men during a war deserve better and fare worse than those whose lot it is to keep open the lines of communication.

Land Convoys.

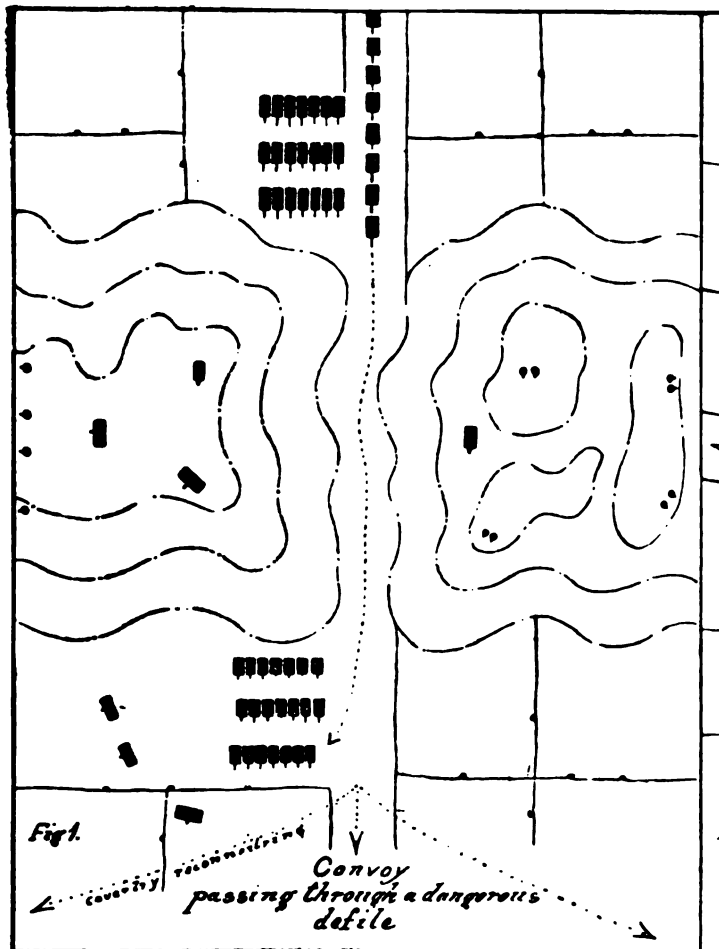
are of various descriptions and importance. The introduction of a convoy of ammunition or food, into a beleaguered city may be covered by a series of movements ranking amongst grand operations of war.

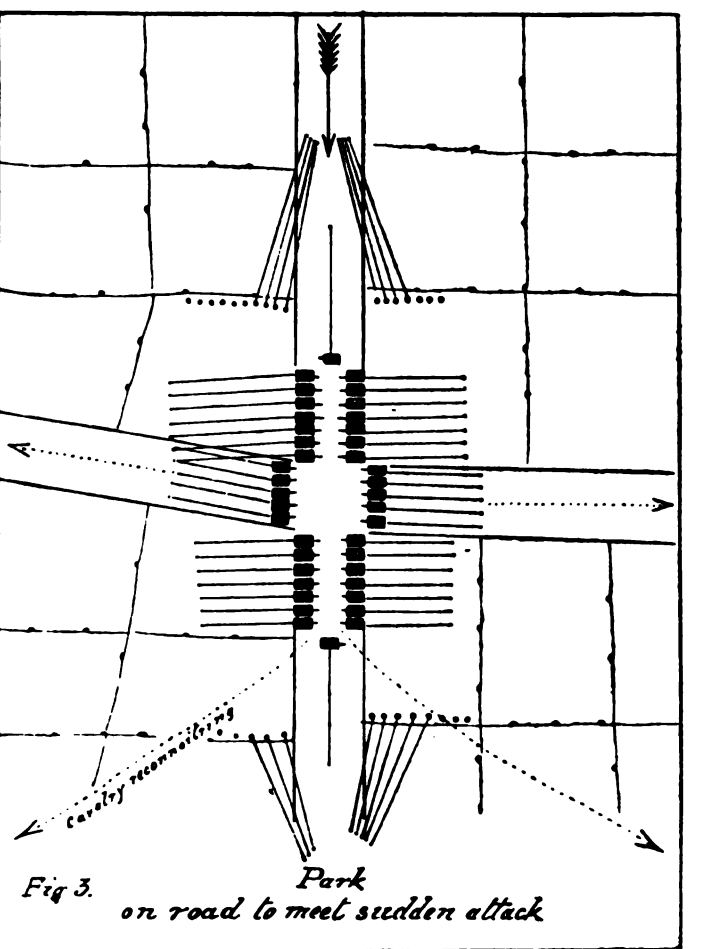
History records numerous instances where convoys of sick and wounded, or of women, children, and civilians, carrying with them every description of human wretchedness, have started forth from a partially invested and ill-provisioned town, only to perish miserably, or to be captured outside. The protection of such a caravan usually entails a serious military operation apart from the actual conduct of the convoy, which, if attacked, cannot be expected to offer any protracted resistance. The ordinary convoys are those plying between a force in the field and its base.

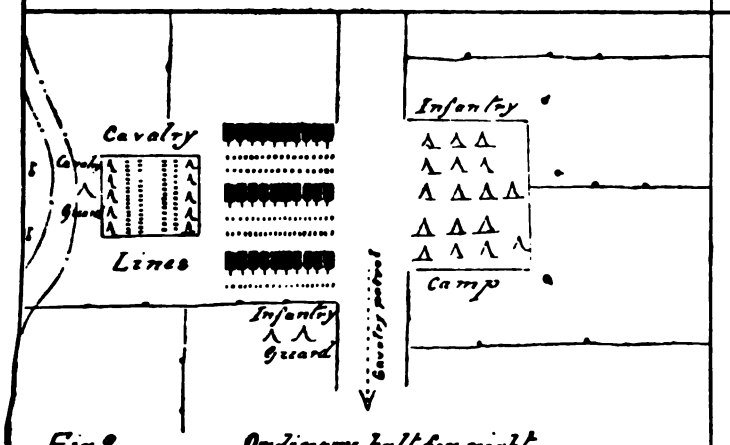
If the country remains openly hostile, and the communications are insecure, no precaution should be omitted to protect the waggons or animals from being looted or captured. With this view an escort composed of cavalry and infantry is usually provided, and the commander is expected to offer a determined resistance against a serious raid, and secure himself against marauders.

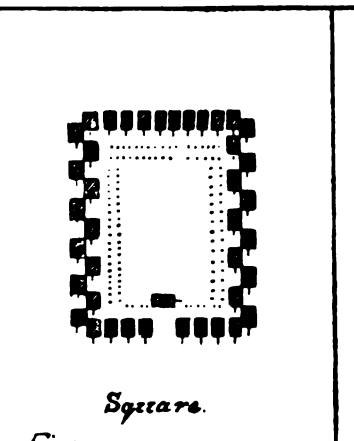
With regard to the conduct of convoys, a few rules have been generally accepted; but their application must vary with the country, the composition of the convoy, and the character and proximity of the enemy. No convoy, whether composed of waggons or pack-animals, or a combination of both should exceed a mile in length on a road, allowing for the waggons to be stretched out in single file. If there are pack-animals, or beasts driven on the hoof (bullocks, sheep, &c.), they should head the convoy, and have the benefit of the best of the road in wet or dry weather.

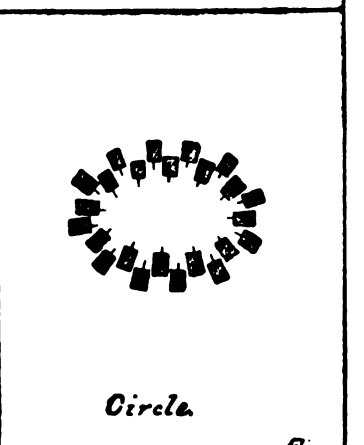
Escorts usually consist of one third cavalry for reconnoitring purposes in front and on the flanks, and two thirds infantry. It is seldom that a convoy travelling alone, with merely its immediate escort, will be expected to repel an attack of the three arms combined; thus guns have rarely accompanied a convoy, although in future Gattling or machine guns will doubtless more frequently be added.

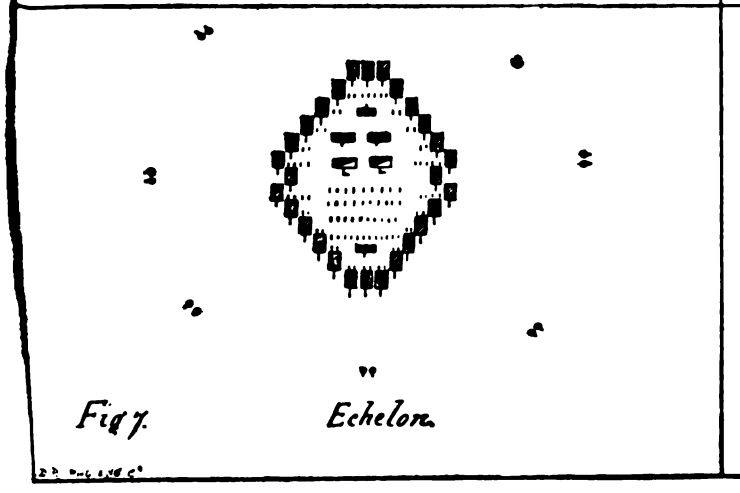

Fig 1.
Cavalry reconnoitring
Convoy passing through a dangerous defile


Cavalry reconnoitring
Fig 3.
Park on road to meet sudden attack


Cavalry
Lines
Infantry
Guard
Infantry
Camp
Fig 2.
Ordinary halt for night


Square.
Figs.


Circle.
Figs.


Fig 7.
Echelon.

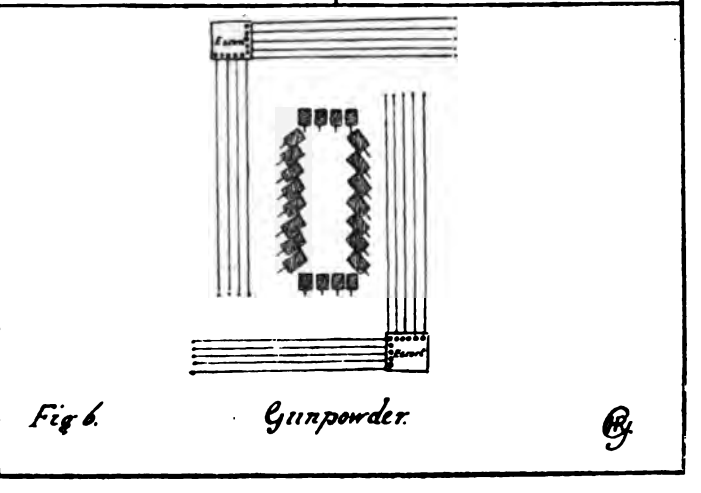

Fig 6.
Gunpowder.

PLATE III.

A long line of waggons or pack-animals is an unwieldy and extremely vulnerable array, and travels slowly in proportion as its length increases. For every reason, therefore, including speed (always an important consideration), whenever the country admits of their moving on a more extended front, the waggons, &c., should be closed up, and the length of the column reduced. A certain percentage of spare waggons, and animals should always be provided in case of breakdowns. The first object of the commander is to get to his destination as quickly as possible, and he should endeavour to get on to his new camping-ground early, in order to water his cattle, and park before dark. The loading and unloading of pack-animals requires time, and should be carefully superintended, or sore backs will soon appear amongst them.

In disposing of his escort, a commander will recognize the extreme importance of obtaining the earliest possible information of an intended attack, and for this reason the cavalry should reconnoitre widely to the front and flanks, the infantry being distributed in front and in rear of the convoy, with a strong reserve about the centre to be moved rapidly in any threatened direction.

Defiles,

at all times dangerous situations for troops on the march, are especially awkward for convoys. In the event of a defile being reached by the main body of a convoy before the advanced cavalry have had time to reconnoitre satisfactorily on the flanks and beyond it (and also with a view to saving as much time as possible), the leading half of the convoy should be halted and parked at the entrance, while the rear half keeps the road and closes up. By the time the second half has reached the passage, the required information may have been obtained, in which case it can push through, preceded along the heights on either flank, if accessible, by a portion of infantry, which, on reaching the far side, takes up a position to guard the entrance. Detachments should also be left to guard the flanks during the passage of the remaining half of the waggons.

On debouching on the far side, the leading portion of the convoy should halt and park, while the remainder passes through and regains its position at the head, when the procession proceeds in its original order.

This arrangement, besides saving time, has the advantage of keeping the bulk of the escort concentrated and close at hand, to protect the passage of the waggons, &c. (*vide* Plate III. Fig. 1.)

There only remains to describe the different methods of parking.

Parking Cattle.

Cattle, whether sheep or oxen, after a long tramp will seldom stray far; provided the last-mentioned have been watered, a stray beast will usually find its companions if left alone.

If unmolested and left alone, cattle, as a rule, quietly settle down for the night.

Horses, ponies, and mules should be picketted in rows, facing each other, with plenty of room to walk between for feeding purposes.

Camels rarely roam at night, and when once down, never stir till morning.

Animals of all descriptions, like men, are easier led than driven.

Soldiers as a rule are considerate to all dumb animals, and soon get to understand their ways.

Elephants are peculiar, and will only obey their own keepers.

Five Methods of Parking Waggons.

1. Ordinary halts when no attacks are contemplated (*vide* Plate III., Fig. 2).

2. When a sudden attack is imminent on the march and there is not time to make a regular park (*vide* Plate III., Fig. 3).

3. Parking in an oval or circle, axle to axle (*vide* Plate III., Fig. 4).

4. Parking end-on in square formations; advantage, more interior space than in No. 3 (*vide* Plate III., Fig. 5).

5. Parking in echelon formations (*vide* Plate III., Fig. 7).

If a convoy consists of explosives the waggons should be parked separately, and the escort divided and posted so as to afford flank protection (*vide* Plate III., Fig. 6).

Convoys by Rail.

A convoy by rail is simply a train, and embarkation and desembarkation is the chief difficulty, for which suitable platforms must be provided.

A pilot engine, armour-plated, should be provided, and the escort distributed between head, tail, and centre of train.

By Water.

A convoy by water is conducted on the same principles as on land.

Cavalry kept well in advance and on the exposed flank. Infantry in separate boats at head, centre, and tail, and only landed when an ambush is possible, or an enemy reported.

If attack be imminent, the escort must be landed, and their boats kept close at hand to retire to.

The loaded boats moving along the opposite side, with arrangements complete for sinking them if in immediate danger of being captured.

H. R. G.

"ORIENT AND OCCIDENT."

NOTES OF A JOURNEY FROM LAHORE TO LIVERPOOL, VIA CHINA, JAPAN, AND AMERICA.

By MAJOR-GENERAL R. REVELEY MITFORD, Author of "To Caubul with the Cavalry Brigade."

(*Continued from page 182.*)

ON leaving Chicago, we branched off from the direct line to New York, as we wanted to catch a glimpse of Canada, the St. Lawrence, and, above all, Niagara.

The "Lake Shore Line" deserved its name, taking us for many miles along the margins of Lakes Michigan and Erie. The scenery between Chicago and Buffalo reminded us of that on the shores of the great Swedish Lakes—displaying a much wider expanse of water, it is true, but showing the same dark belts of pine-wood, the same terminable log-fences, and the same level, alluvial, richly-cultivated country.

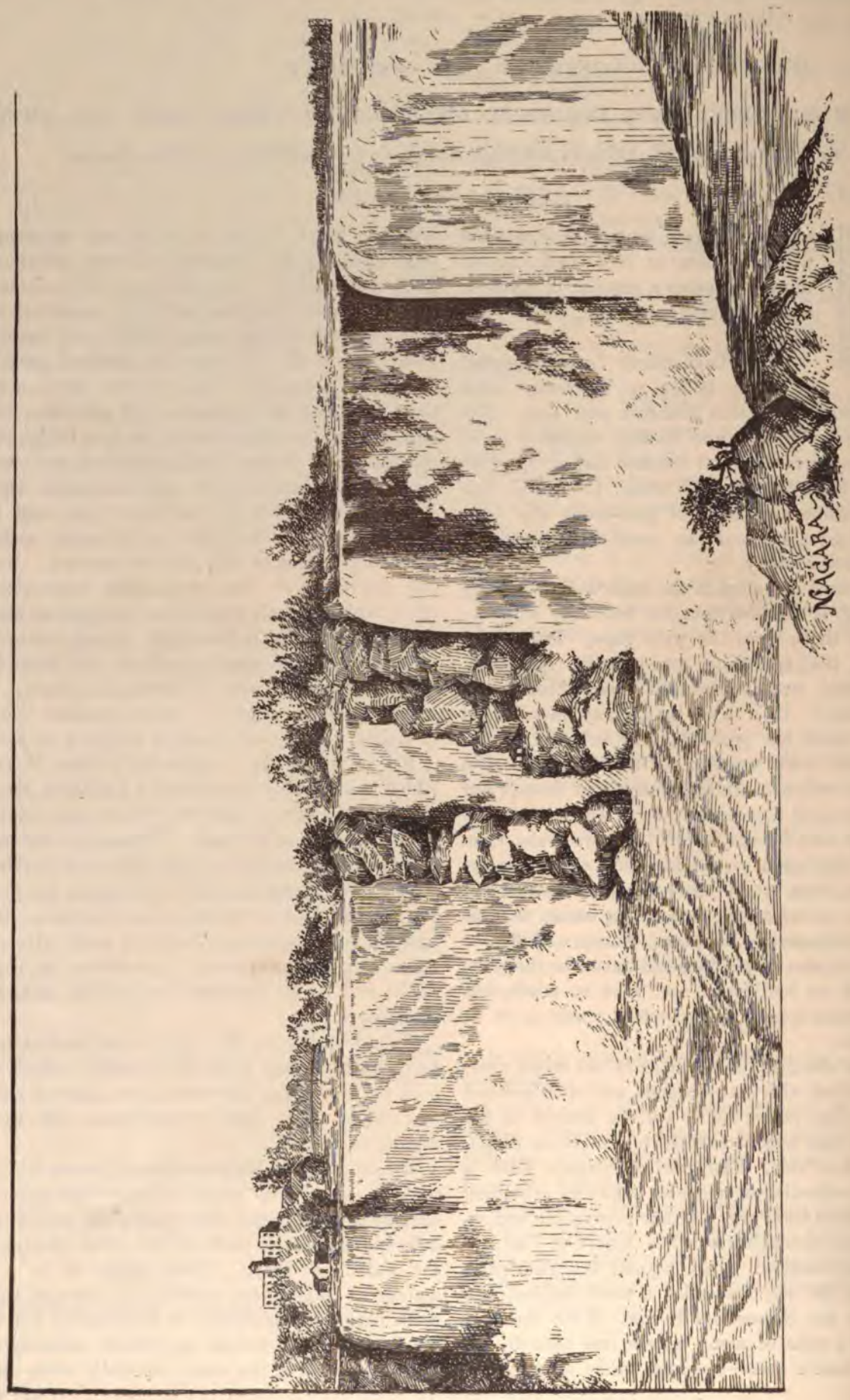
We again dined and slept in the train, and on waking next morning it seemed that we had been standing still! Surely those were the wide glassy waters, the sandy shore, the spreading green fields, and long, straggling fences, on which we had gazed through the dusk of evening? It is true that many more ships were now in sight, but probably they left port in the morning, which would account for their number. But the conductor enters at this moment, and dispels our fancies by shouting (intelligibly, for a wonder): "Buffalo! Change cars for the Falls!" and we wake from our dream of Michigan to the fact that we are at the eastern end of Erie, where the great sluice called the Niagara river, carries off the superfluent waters of those inland oceans—Superior, Michigan, Huron, and Erie—to dash them in one stupendous cataract over the great falls of which we had heard and read so much, but which had always seemed so far out of reach as to be almost mythic.

The line ran along the south bank of the broad river, which was studded with many islands, and often widened out into lake-like pools; at 10 A.M. we arrived at the Falls Station, and took a carriage to the Clifton Hotel, on the Canadian side. The town of Niagara Falls is a picturesque collection of irregular buildings, extending to the entrance of the Park, a public promenade and recreation-ground, through which the American Fall and the islands are reached. Just beyond the Park-gates we turned to the left, descended a short incline, and passed on to the Suspension Bridge. Ever since we left the depôt a noise of many waters had been in the air—a deep, hoarse roar—a sound unlike anything we had ever heard before, unless it may be compared to that made by the whirring of many wheels in some great manufactory. Now the cause of this strange noise was disclosed—two hundred feet beneath flowed the broad current of the river, flecked and streaked with foam, and on the left, not five hundred yards off, was the great Horse-shoe Fall. As we drove nearer the Canadian bank, the American Fall also came into view, and from the northern end of the long bridge the whole panorama lay before our astonished and bewildered eyes. I had heard much and read more about this wonderful scene, but no amount of the most vivid description can give any idea of the poetic majesty, the ethereal grandeur of this glorious cataract. No painter can convey more than a maimed impression of its effect, which appeals not only to the eye but also to the ear, and draws its indescribable charm not only from grand outline and gorgeous colour, but from ceaseless movement and the sense of irresistible power. Niagara must oppress the noblest of poets, bewilder the greatest of artists, and convert the most stubborn of atheists!

We stayed at the comfortable Clifton House Hotel, which is admirably placed on the Canadian side, in full view of the Falls, so that the visitor can drink his fill of their beauty at his ease. Fortunately, the moon was nearly full at the time of our visit, and enabled us to behold the entrancing sight of Niagara by moonlight, when a fairy-like unreality wraps the scene; the Falls look like huge unmoving sheets of solid silver, and the vast column of spray rising high above the Horse-shoe might well be the shadowy form of the great Spirit of the Waters.

We sat up late on the night of our arrival, unable to tear ourselves away from the verandah, which afforded such an entrancing panorama, and started early next morning to make closer acquaintance with the eighth wonder of the world.

The drawback to Niagara is having to see it! I do not mean to gaze on its grand beauty—that one could be content to do for ever—but to go about and inspect the different component parts of the great picture, to "do the Falls," in short. There seems to be a certain amount of impertinent curiosity in this—an attempt to catch nature in deshabille—to look behind her veil and see how she gets herself up, which certainly detracts from the poetry of the scene, especially when each fresh


NIAGARA

cide, but the Horse-shoe is an ocean rushing into eternity.

The old soldier who has charge of the bridge between Bath Island and the mainland had been at his post for twenty-four years, and said he had noticed great alterations in the aspect of the falls, especially in the centre of the Horse-shoe, which has receded into an acute angle. He has seen a greater change since our visit than in all his previous years' experience, for in January last a huge piece of the over-hanging Table Rock on the Canadian side fell into the gulf below.

At length we tore ourselves most reluctantly away from the entrancing falls, and resumed our journey through fresh scenes, though the glamour of the great cataract long lay on us like the spell of a mighty wizard, and I can still summon up the vision of the great falling waters with clearest distinctness, and fancy I still hear the deep roar of Niagara, the "Thunder of Waters."*

Bridgeway heroes, volunteers who fell in repelling an irruption of Fenian scoundrels from the United States in 1866. Trinity College is the grandest building in the town, with a very handsome gate-tower, fine library and museum, and pretty grounds. The Horticultural Gardens are also very good, and most tastefully laid out. Altogether Toronto gave us the impression of being a thriving place, and looked much more solidly built than the towns we had hitherto seen in the United States. One small shop attracted a disproportionate amount of attention by its sign-board, "Hospital for Umbrellas."

We left Toronto by steamer in the afternoon, and could now see that the harbour is large, and well sheltered by islands and artificial breakwaters. The night was spent on board, and at six o'clock we rose to find that we were just entering the "Thousand Islands," the most beautiful part of the River St. Lawrence. For fifty miles the surface of the wide, deep



Leaving the station on the Canadian side in the early afternoon, we went by train to the town of Niagara, on the shore of Lake Ontario, where the river debouches. Near Queenstown we saw a striking monument to the English General Brock, who, with his aide-de-camp, McDonnell, fell here on the 11th October 1812. It is a pillar nearly two hundred feet in height, admirably placed on a slight hill, and visible for many miles around. On either side of the mouth of the river is a small fort, one English, the other American; the lake stretches away to the far horizon like a calm sea, its shores flat and uninteresting. The boat was very unpunctual, and we did not reach Toronto till long after night-fall.

Next morning showed us a handsome, wide-streeted town, quite ultra-English in its sign-boards, flags, and other decorations. The main thoroughfares are bordered with wide turf and rows of trees, often horse-chesnuts. In Queen's Park is a monument to the

* "Niagara"—the name bestowed on the falls by the Indians—is thus translated.

stream, was thickly studded with rocky islets of all sorts and sizes, covered with trees, and generally with one or two villas showing through the foliage, while fanciful names of points and bays were painted on the rocks. At Alexandria Bay was a large picturesque hotel, and in the stream lay a good-sized steamer, drawing fourteen feet of water, plying between Odensburg on the St. Lawrence and Chicago, the great Welland Canal between Erie and Ontario being deep enough to admit vessels of considerable draught.

Below the Thousand Islands the river gradually widened till the flat, uninteresting banks sank level with the horizon; soon they close in again, the Ottawa River added its quota to the stream, and the "Rapids" began with those of Galope, and continued with intermittent stretches of peaceful stream all the way to Montreal. These rapids are nothing more than bends of the river, where a rocky bottom creates little breakers and whirlpools—pretty to look at, but neither exciting nor dangerous to pass, at least with ordinary care. To read the accounts of them published in American

guide-books, one would think them as dangerous as the Maelstrom described by ancient mariners, while they are in fact as tame as the Scandinavian Charybdis is now known to be; but this is only another instance of the "tall talk" so freely indulged in by the citizens of the Great Republic about everything they can possibly claim as their own.

We reached Montreal soon after dark, and went to the Richelieu Hotel, a thoroughly French establishment, as might be expected in a town, two-thirds of whose inhabitants are of French descent; this also appears in the nomenclature of the streets and surrounding hills, the names over the shops, and the *patois* of the lower classes; I often felt as if I had been suddenly dropped on one of the Channel Islands. Montreal is an island thirty miles long by ten wide, and the city is built on a high ridge called "Mount Royal," running parallel to the river; it presents a very picturesque tableau with its fine churches and other public building on the ridge; its handsome river-front with lines of limestone quays, alongside of which lie ships from all parts of the world, its great Victoria Bridge, two miles in length, spanning the St. Lawrence; its twisted chimneys, quaint gables, and glistening tin roofs, and the beautiful hilly and well-wooded country stretching away to the horizon on all sides. The best view is obtained from a point of Mount Royal overlooking the city. Leaving the Place d'Armes, and the six towers of Notre-Dame on our left, we ascended the winding road to the top of the Mount, passing the Jesuit Church of the Gesu—a fine building with lofty nave, good paintings, and gorgeous side-chapels—and the beautifully-kept cemetery, and emerged from the woods which shade the road, to find ourselves on a lofty plateau. The view was very extensive and very beautiful, especially to the south, where the spires and house-tops of La Prairie rose above the verdant sea of foliage, and a glistening haze on the horizon marked the position of Lake Champlain.

We extended the drive "Round the Mountain" to the Lachine Rapids, but they were not worth the trouble—a wide, frothy stretch of broken water—nothing more. The foliage of the maples was far more wonderful and beautiful, a bright, pure green, with here and there a column of brilliant flame-colour—quite dazzling by contrast with its cool verdant background—giving earnest of the gorgeous change which would occur some six weeks later, and clothe the whole country-side in a robe of glowing scarlet and orange.

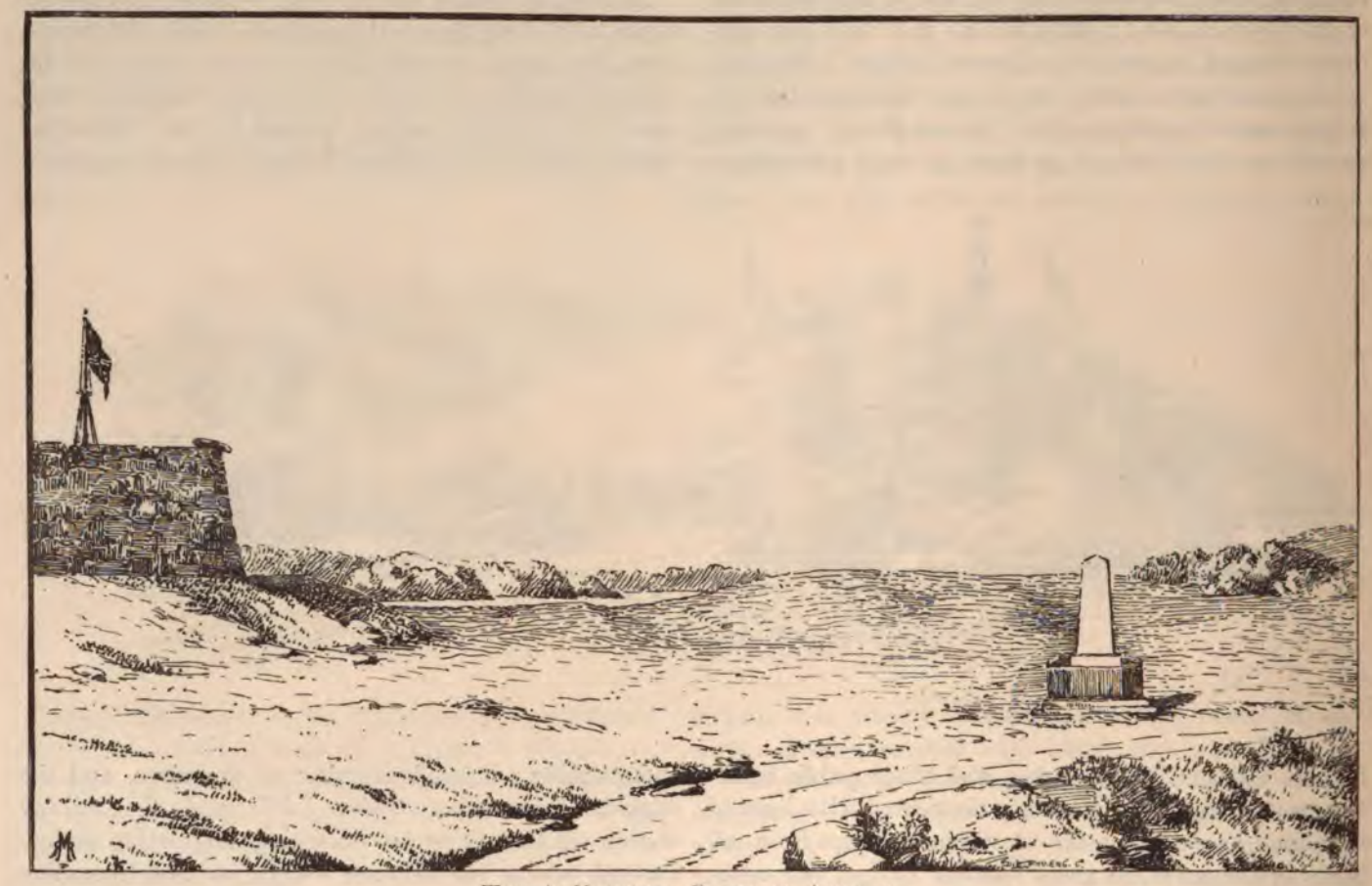
Leaving by boat in the evening, we arrived at Quebec at an early hour the next morning. This picturesque town lies partly on the shore of the river, but the principal portion is built on the cliffs, two hundred feet above the stream, and is reached by an "elevator," which lands you on Dufferin Terrace, a broad esplanade commanding a magnificent view of the river, and the opposite shore, where Point Lévis and the railway station are backed by far-stretching, undulating plains, through which the rippling waters of the Chaudière wind like a silver ribbon, broken into threads of finest lace where they plunge over the falls, 150 feet in height; a French frigate lay at anchor, with many other vessels in the river. Of course, one of our first excursions was to the memorable Plains of Abraham. Passing the Parliament Buildings, which still showed traces of the Fenian attempt to destroy them with dynamite, we drove along St. Louis Street to the citadel, a granite-built fortress on the summit of Cape Diamond, 333 feet above the river, which it seems to overhang. Here the chief objects of interest were the gates, made of chain cables coiled over iron frames, and a gun captured at Bunker Hill. The garrison consists of Dominion Artillery, the home troops having been withdrawn in 1870.



Beyond the citadel rose four martello towers, and on the left frowned the massive walls of the jail, also overhanging the waters of the St. Lawrence. In front lay a small grassy plain, the scene of the decisive action fought on the 13th September 1759, which for ever destroyed the French power in America, and added another empire to the British crown. It is also noted in military annals as the only battle in which both the opposing leaders fell. The spot where Wolfe was killed is marked by a granite column, bearing this grandly simple inscription—

HERE DIED WOLFE, VICTORIOUS, 13TH SEPTEMBER 1759.

which most of the old wooden houses originally forming the city were destroyed; two of these buildings, however, still remain to perpetuate the memory of historical events, and to remind the visitor that Quebec has not always been the quietly prosperous, peaceful town it is at present. These old-fashioned, high-roofed cottages, with their latticed windows, climbing creepers and deep over-hanging eaves, have nothing to attract notice save their very picturesque appearance, yet one was occupied by the ill-fated Montcalm as his head-quarters, and the other received the body of an equally unfortunate leader, the American Montgomery, who was slain with 700 of



WOLFE'S MONUMENT, PLAINS OF ABRAHAM.

The rough, steep path by which the British troops secretly gained the heights during the night before the battle is still pointed out, and also the spot from which next morning Montcalm saw them drawn up ready to advance, believing then for the first time that his enemy had not only crossed the river which he deemed impassable, but also scaled the cliffs which he thought impregnable. In Governor's Garden, not far from the Place d'Armes, is a lofty obelisque—"Quebec's joint Monument to Wolfe and Montcalm," runs the inscription—a noble tribute to the victor and the vanquished.

Quebec shows many traces of the frequent fires by his followers in an attempt to capture the city on the 31st September 1775.

The French and English cathedrals are fine buildings, but they are far surpassed in size, architecture and position by the Laval University, a stately pile of grey granite, overlooking Grand Battery, and commanding a magnificent view of the St. Lawrence, and the country on its south bank. The Ursuline Convent is a very picturesque group of buildings; the remains of the Marquis de Montcalm lie in the grounds, buried in a hollow made by a bursting shell.

One of the most picturesque places in this city of pictures is La Côte de la Montagne, or Champlain Steps,

a quaint steep stone stair-way, leading down from the plateau behind Dufferin Terrace, to a church built on the site of Champlain's residence, and consecrated to Notre-Dame des Victoires.

We returned to Montreal by train, crossing by ferry to Point Lévis, whence the line ran through swampy ground, varied by plantations of young fir trees, to Richmond. From Richmond to La Prairie, the scenery was beautiful, a succession of fine woodland, where the maples were already lighting their flaming torches, richly cultivated fields, and picturesque peeps of the St. John's River, through which Lake Champlain pours its superfluent waters into the St. Lawrence, combined to make this part of the railway journey one of the prettiest of our American experiences.

The hues of a gorgeous sunset decked the sky as we rapidly approached La Prairie, but all beauty was blotted from our eyes immediately after we left that station by our entering the dark tube of the Victoria Bridge, twenty-two feet high, sixteen wide, and a mile and three-quarters long, from which we emerged into the depôt at Montreal.

On leaving Montreal next morning for the States, we had to pass the customs, not a very complicated business in the case of people travelling as light as we were, and then were free to enjoy the beautiful views of Montreal from either end of the great bridge. At Rouse's Point we crossed the frontier and found ourselves on the shores of Lake Champlain, a fine sheet of water twelve miles in breadth and over a hundred and twenty in length, lying in the midst of a wide valley, bounded by the Green Mountains of Vermont on the east, and the Adiron-dacks on the west. The scenery was flat and tame until we neared the southern extremity of the lake where the hills close in, gripping the valley between Lake Champlain and Lake George. At Ticonderoga we left the shores of Lake Champlain, not without casting a glance at the site of the old Fort, so often taken and retaken by French, English, and American, and five miles further, arriving at the head of Lake George, we exchanged the close, stuffy cars for the comfortable, airy deck of the lake steamer *Horicon* (the Indian name for Lake George, signifying "Silver Water,") and enjoyed at our ease the voyage down this beautiful loch. We passed many wooded promontories and sylvan islets (the number of these latter is said to correspond to that of the days in a year) all pretty, and generally occupied by picturesque red-roofed cottages; Prisoner's Island is where the French captives were placed during the wars of the last century; the Sagamore Hotel looked well-placed, and was surrounded by beautifully kept grounds; its walls of rich buff, bright scarlet verandahs and green venetians were pleasant and tempting, but time did not permit of our stopping there. Many other hotels dotted the banks of the lake as we steamed down to Caldwell at its southern extremity, where we again "took the cars" for Saratoga Springs. The line now ran through a tract of wooded, hilly country, passing between two small lakes, one of which is called "The Bloody Pond," because the bodies of the slain were thrown into it after a fight between the French and English on one side and the Americans on the other, on the 8th September, 1755, and its waters are said to have retained a crimson tinge for many years afterwards. Next we passed Glen Falls, the scene of many of the incidents, in Fenimore Cooper's *Last of the Mohicans*. At Fort Edward we crossed the Hudson River, and reached Saratoga at half-past six in the evening, very hot, very dusty, and thoroughly in the humour to appreciate the comforts and luxuries of this western Capua.



Our first impressions of Saratoga (confirmed by further experience), were those of a glorified Cheltenham; there were the same fine trees shading the promenade, the same allusions to the "waters," and the same air of *dolce far nienti* (so unusual in America) pleasantly enveloping everybody and everything, but there the likeness ceased. The shops in Saratoga do not bear comparison with those of the Gloucestershire Spa, while the hotels are far more immense and infinitely more magnificent than the "Queen," in fact they are amongst the very finest we saw in America. The "Grand Union," leads the van, with its richly-decorated *salons*, lofty ceilings, wide piazzas, and beautiful gardens, but it is hard-pushed by the "United States"; each of these establishments accommodates nearly two thousand guests; "Congress Hall" can receive twelve hundred; while the ultra-fashionable "Clarendon," which is here looked

upon as quite a small place, holds five hundred, and there are fully forty other houses of entertainment with room for from two to eight hundred visitors in each.

We were amused to hear Saratoga invariably spoken of as a village; it seemed queer, after our recent experience of the "cities" of the West. The permanent population of this "village" is eleven thousand, but this number is trebled during the season which lasts from June 15th to September 15th. The very lofty verandahs are a striking feature in the first sight of the mammoth hotels, they run up to the top of the huge edifices on light iron pillars, and add much to the picturesque *ensemble* formed by the pretty, shady roads, the scarlet, green, buff, or chocolate painting of house-fronts and verandahs, and the marble trottoirs in Broadway, the main thoroughfare. In the evening ladies came out in pretty dinner toilettes, and walked up and down this pavement without hats or bonnets; the men, on the other hand, almost invariably wore the hideous "stove-pipe." The streets were brilliantly lighted with gas and electricity, good bands played in the hotel gardens, and the avenues were even fuller than in the daytime. Many of the notices and advertisements were exceedingly quaint; just in front of the hotel was a wine-store, the door of which was sheltered by a coloured glass porch with a board fixed in front displaying the following notice: "Do not stand in front of this Storm House, IT, of itself, is sufficiently ornamental!"

Saratoga is really a strikingly picturesque town and the many pretty drives in the vicinity add greatly to its attractions; while the different medicinal springs are said to cure every ill that flesh is heir to. The drive to Saratoga Lake is a favourite expedition; beyond many well-kept, handsomely-built houses standing in pretty grounds, extends the Lake Road, a wide boulevard four miles in length, well watered throughout, and with a



BROADWAY, SARATOGA.

row of trees down the centre as well as on each side. The lake is a fine sheet of water, eight miles long by two and a half wide, and the hotel at the end nearest the springs is a favourite restaurant where the gilded youth of New York meet for pic-nics. The Indian name, Saraghoga, means "the place of herrings," which used to come up the Hudson into the lake.

Of course we visited Congress Park, and tasted the waters; fortunately, we did not require them medicinally —I say "fortunately" in a double sense, for to the natural pains of the invalid who visits Saratoga are superadded the artificial troubles of choosing amidst the rival springs, each "run" by a company, which

unblushingly announces that its own fountain is the one true Hygeian source, and that all the others are not only worthless as medicine, but downright deadly poison!

The great eyesore in Saratoga is the Town Hall, on Broadway; the tower of this very ugly edifice looks as if it had started in life with the intention of becoming a spire, but had suddenly stopped growing and blossomed out into a four-faced clock. The effect is most funny, and is made all the more ludicrous by its excellent situation, and the contrast it presents to the really fine buildings near.

south of Saratoga: but at Round Lake the hills entirely cease, and hence to Albany the plain is unbroken even by a hillock. Albany, a large and thriving town, at the head of the tidal water of the Hudson River, was founded by Dutch settlers in 1614, and is the second oldest European settlement in the States; Jamestown in Virginia being the first.

We intended to complete our journey to New York by steamer, so we went on board the fine, large, handsomely-fitted river-boat, which started down stream almost immediately after the arrival of the train. The banks of the wide river were dotted at frequent intervals with



THE PALISADES ON THE HUDSON, NEW YORK.

Great excitement prevailed during our stay, caused by the news of the defeat of the English yacht, *Galatea*, by the American, *Mayflower*. One would have thought that all the Irish had suddenly returned to their own distressful country, or that Canada had joined the Union, so great was the jubilation in the smoke-rooms, and so loud did the eagle scream in the newspapers!

We found the heat very trying—a damp heavy heat like that of the Indian plains during the rains—so in spite of its many attractions we were glad to leave Saratogo at 7 A.M, on the 11th September, *en route* for New York.

The pretty, undulating country we had admired since leaving Lake Champlain continues for several miles

huge, white box-like buildings, innocent of doors and windows; the only apparent mode of ingrees being by iron ladders reaching from the water to the roof; these were ice-houses, and contained the immense supply required not only in New York itself, but in all the neighbouring towns. The ladders admit the workmen to the interior of the great store-houses, and also act as slides down which the crystal blocks find their way to the barges waiting in the river below.

The first break in the level horizon was made by the Catskill range to the west, a long line of pretty, low hills, where the parched and business-worn New Yorkers can spend their Sundays, drinking the fresh air and dreaming of Rip van Winkle. We next passed Poughkeepsie

on the left bank, the site of the Vassar Ladies' College, and then turned again to the opposite shore for a glimpse of the great Military Academy at West Point—the Sandhurst of the States; this fine range of buildings occupies a wooded eminence jutting out into a stream—a surveying party of cadets in blue jackets and white trousers stopped their work as we passed to wave their caps to friends on board.

Below West Point the banks became prettier; the broad river widens out and contracts once again before entering the lake-like Tappenzee, from the lower end of which it issues again—a stately stream passing Sing Sing, the State prison, with its village and harbour on the left shore, until at twenty miles above New York on the opposite bank commence the Palisades; cliffs of trap-rock three hundred feet high in some places, crowned with foliage, and presenting a continuous line of fluted pillars, which wall in the Jersey shore to the very outskirts of the city. The upper part of these cliffs reminds one of the rocks at Staffa; but their base is covered with a *débris* of shale, partially overgrown by brushwood, and extending more than half-way up their sides.

Yonkers on the left bank is an old Dutch harbour, still much used, especially by the crowd of yachts, which forms one of the most picturesque features of the river.

And now the buildings on this bank become continuous — wharves, warehouses and gigantic grain-elevators jostle each other for a front place. Jersey City on the right gradually loses its suburban aspect and asserts its civic dignity—ships, ferry-boats and steam-launches throng the stream, and compel us to moderate our speed—spires, clock-towers, domes and turrets rise on either hand, until at 6.30 P.M. we run alongside Twenty-third Street Wharf; we are in New York, and our long journey across the Continent is ended.

We first went to the Windsor Hotel, a most excellent establishment, with fine rooms, good attendance, a capital *cuisine*, and real comfort; but with the drawback (to us) of being rather far "up-town," and more English than American. My readers will be surprised at my calling this a "drawback"; but I must beg them to recollect that we came to America to see America—not England transplanted—and that one of most salient features of the country is its hotels. We determined to enjoy the rest and quiet of the Windsor for the present, and to go to a "right-down" American Hotel on our return from Roston, which we had decided on visiting before leaving the country.

Next day was Sunday, and we should have liked to go to church; but here, again, the miserable "check system" stepped in to frustrate our plans, for we had only hand-bags with us—a strange trunk had been sent instead of ours—and the rest of our luggage could not be obtained from the depôt until Monday, so we spent the day in driving about the city.

The private residences are all at the northern end, round and above Central Park. The city is laid out in squares or oblongs, formed by the intersection of the Avenues, running north and south, and the streets, which lie at right angles to them, and thus divide the whole upper town into "blocks"; but at the southern extremity, round the Battery and Wall Street, where most of the business offices are, this rectangular regularity is broken, and the streets get complicated and cross each other in bewildering confusion. One more exception, and a noted one, is Broadway, the Regent Street of New York, which runs through its heart at an acute angle from Bowling Green—the nucleus of the city close to the Battery—to Fifty-ninth Street, at the foot of Central Park, where it changes its name to "the Boulevard," continuing its course to One-hundred-and-Sixty-seventh Street (what a



BUNKER HILL MONUMENT.

mouthful!) and showing every sign of proceeding still farther, until the growth of bricks and mortar and "brown-stone fronts" is stopped by Haarlem River, which separates Manhattan Island from the mainland. Besides this great central city, the still larger suburbs of Brooklyn and Jersey City are just as much parts of New York as Southwark and Hampstead are of London): the first is separated from Manhattan Island by the East River, crossed by the famous Brooklyn Bridge, and the second by the waters of the Hudson, seamed by the tracks of innumerable ferry-boats crossing and re-crossing thick as motes in a sunbeam.

Manhattan Island is thirteen and a half miles long, and two and a quarter wide at its broadest part; but the whole area of the city is over forty-one square miles.

The streets of New York are very noisy, partly owing

to the rough cobble-stones with which they are paved, but still more to the constantly passing trains of the Elevated Railroad which traverses the length of the city in four nearly parallel lines. The track is raised above the street on an iron scaffolding, the trains run level with the first-floor windows of the larger houses, and as they passed at intervals of four minutes throughout the day and night (with the exception of the five hours between 12.30 A.M. and 5.30 A.M., when they only run on two of the lines every quarter of an hour), the distracting and almost ceaseless rattle must be well nigh unbearable to the dwellers in neighbouring houses. The stations are at short distances, at the corners of the principal streets, and are approached by steep stairways; the fares are ten cents or fivepence, irrespective of distance. This charge is decreased by one half on Sundays, and in the mornings and evenings at the hours workmen and clerks generally go to, and return from, their labour. Tramcars, drawn by horses, run under the Elevated Railroad track, and all other wheeled traffic passes on the uneven pavement, on each side. The Battery encloses a little green park with seats under the trees, called Bowling Green: Bertholdi's Statue of Liberty is in full view on Bedloe's Island in front, and the foreground is filled by the handsome granite building for pilots, called the Barge Office on one hand, and the ugly brown dome of Castle Garden, the Emigrants' Home, on the other. The General Post Office is a handsome building, but what most impresses the new arrival is the number and size of the churches, of which a far greater proportion exist than in any other city I have ever seen. Many of these are very fine buildings, especially Grace Church, which raises its delicate spire at a point where Broadway makes a slight turn, so that the façade looks straight down the busy thoroughfare towards Bowling Green: the new Roman Catholic Cathedral, built by means of contributions levied on the poorest inhabitants of the city, is a magnificent edifice—or rather it will be when the two towers are completed—the interior is very beautiful, and the elaborately-carved white marble pulpit is a miracle of good taste in these degenerate days.

On Monday 13th September, we left for Boston at 4 P.M. For some distance the train ran through a tunnel under the city, then came the open country, flat and uninteresting. After a six hours' journey we reached Boston to find the hotels crowded by people who had just returned from their autumn holiday, and either had no houses to go to, or were waiting till they were ready for occupation. The booking-clerk (please pronounce this "clurk") at the Parker House Hotel told us that this plethora would last for about a month, by which time people would have "got fixed."



THE STATE HOUSE, BOSTON

Boston, the "Hub of the Universe," and the most Yankee city in Yankee-land, impresses one as a very fine town, even just after seeing New York; the effects are broader, the principal buildings more open to view, and the entourage more picturesque than those of the capital. Of course we went to do penance at Bunker Hill, and duly eat humble pie there, as *all* Britishers are bound to do, according to American—and especially Bostonian—notions. The monument is in Charleston, the northern suburb, and consists of a plain granite pillar, or rather obelisque, 221 feet high, and painfully like a factory chimney. It was completed and dedicated on the 17th of June 1843, the sixty-eighth anniver-

sary of the battle. The United States Navy Yard is at Charleston, shut in from vulgar gaze by a long stone wall, past which we drove to the beautiful Woodland Cemetery, returning by another route. In the afternoon we drove along Commonwealth Avenue, a magnificent boulevard, turf and trees down the centre, a broad road and very fine houses on each side; returning through the Public Garden we stopped to admire the fine clumps of variegated colias which flourish here amazingly, also the ornamental lake with pleasure-boats, propelled by a wheel in the bows, wheel and boatmen being alike concealed by a large carved white swan with outspread wings. The gardens are adorned with some fine statues, chiefly those of statesmen. Crossing a road we entered a park called the "Common," prettily laid out with winding walks, grassy lawns and fine trees; from a hillock in the centre rises the Soldiers' Monument, a granite column ninety feet high, surmounted by an allegorical figure of America standing on a hemisphere and guarded by eagles. The inscription on the base dedicates the monument to the "men of Boston, who died for their country, on land and sea, in the war which kept the Union whole, destroyed slavery, and maintained the Constitution. The grateful city has built this monument that their example may speak to coming generations." The pedestal is adorned with four large statues and bronze bas-reliefs.

At one end of the Common stands the Capitol, or State House, as it is also called, a fine building with pillared front and lofty gilt dome, surmounted by a cupola. In the interior is an octagonal hall of white marble, with recesses like side-chapels or shrines. The one facing the entrance holds a fine statue of Washington, by Chantrey; its base surrounded with fac-similes of the tombstones of the Washington family, from Brington parish church, in Northamptonshire, presented by Lord Spencer. On either side of this alcove stands a brass nine-pounder gun on end, like a pillar, and inscribed: "The Legislature of Massachusetts consecrate the names of Major John Buttrick and Captain Isaac Davis, whose valour and example excited their fellow-citizens to a successful resistance of a superior number of British troops at Concord Bridge, the 19th of April 1775, which was the beginning of a contest in arms that ended in American Independence." In the remaining six recesses the colours borne by the Massachusetts troops in the Civil War are most strikingly arranged and gracefully draped. Glass doors protect these shot-torn and often blood-stained relics of the great struggle, and at the side of the centre arch hangs a glass frame, containing an extract from the speech made by Governor Andrews on receiving the battle-flags, and expressed in terms at once so touching, so graceful, and so soldier-like—so happily mingling the conqueror's triumph with the mourner's grief — that I make no apology for this third quotation, feeling confident that my readers—especially my military readers —will deem none necessary:—

"These banners returned to the Government of the Commonwealth through welcome hands. Borne one by one out of this Capital during more than four years of Civil War, as the symbols of the Nation and the Commonwealth under which the Battalions of Massachusetts departed to the fields; they came back again, borne by surviving representatives of the same heroic regiments and companys to which they were intrusted.

"Proud memories of many fields—sweet memories of valour and of friendship—sad memories of fraternal strife—tender memories of our fallen brothers and sons, whose dying eyes looked last upon their flaming folds—grand memories of heroic virtues, sublime by grief—exultant memories of the great and final victories of our country, our union, and the righteous cause—thankful memories of a deliverance wrought out for human nature itself, unexampled by any former achievements of arms—immortal memories with immortal honours blended twine around these splintered staves, weave themselves along the warp and woof of these familiar flags—war-worn, begrimed, and baptised with blood!"

A very fine panorama of the battle of Gettysburg was being exhibited. The artists were the same who had painted the Battle of Waterloo, which we saw at San Francisco. It was most excellently conceived and carried out, and brought the scene of the great "Three Days' Fight" between Meade and Lee vividly before one. In this action, which took place on the three first days of July 1863, about 80,000 troops were engaged on each side. The Federals lost 23,190 in killed, wounded, and missing; the Confederate losses have never been officially stated, but they are generally estimated at about 36,000.

We returned to New York by the Shore Line, passing through pretty, well-wooded country, wide pastures, and stretches of swampy marshland, banked in by long, low mounds, crested with boulders and ridges of granite. At Mystic we crossed a river of the same name by a drawbridge, and, at New London, passed over the Thames, the train being drawn on to a huge ferry boat by hawsers, and taken across in two or three sections, according to its length.

After being detained nearly half-an-hour in the tunnel close to the Grand Central Depot, we were at length taken into the depot, and proceeded to our new quarters at the Hoffman House.

(*To be continued*).

GENERAL BOULANGER:

HIS INFLUENCE ON THE FRENCH ARMY.

By LIEUT.-COLONEL A. L'ESTRANGE.

CHAPTER V.—The Command in Tunis.

DESIROUS of obtaining a knowledge of all branches of the service, Colonel Boulanger got transferred in 1880 to the command of the 14th Brigade of Cavalry, head-quarters at Valence, the Chef-lieu of the Departement de la Drôme, formerly capital of the Valentinois, and created a dukedom, for the infamous Cæsar Borgia, by Louis XII. That command he held until August 1881, when he was appointed Chief of the French Military Mission sent to represent the Government of the French Republic at the Centenary Celebration of the Independence of the United States. The Marquis of Rochambeau, in an interesting brochure entitled *Yorktown*, gives a complete and detailed account of the doings of this very successful mission, and remarks that the results materially contributed towards strengthening the ties of friendship which bind America and France together. Speaking of Colonel Boulanger on the occasion, he says:—

"Aux États-Unis il personnifiait l'armée française de la façon la plus heureuse: les hommes admiraient la finesse de ses appréciations et l'étendue de son savoir; les femmes sa tournure élegante et martiale, la grâce de ses manières. À coup sûr la France ne pouvait avoir de plus aimable représentant de l'autre côte de l'Océan." On leaving America, Colonel Boulanger visited Canada, and in the Dominion, where a large proportion of the inhabitants speaks French, he received a cordial and enthusiastic reception.

On returning to France he resumed his cavalry command until April 1882, when he was appointed by General Billot, the French War Minister, to the important post of Director of Infantry. General Billot's selection was popular with the army. As his biographer says:—

"On avait foi, dans le jeune général dont l'existence militaire était déja si remplie. On connaissait son intelligence, son esprit pratique, son amour des utiles réformes. Son passage dans les bureaux de la rue Saint-Dominique a laissé une trace profonde."

In estimating General Boulanger's influence on the French Army, we should, did space permit, describe categorically all the useful measures of reform initiated by him while he held his new appointment. The limits of this paper will only allow us to catalogue them. He reorganized the school of non-commissioned officers, that also of pupil officers, and the École d'Enfants de Troupe. He raised the effective strength of the Military Prytanée, and recast the rules relating to infantry manœuvres, giving logical basis to progressive annual instruction. He imported a general impetus to the musketry practice of the army, and established rivalry in rifle matches throughout all battalions of infantry. As Hercules grappled with the Lernean Hydra, so Boulanger wrestled with red tape. Attacking that overgrown monster he did away with an endless number of forms, returns, and duplicates, and so reduced the clerical work of the French War Office to an appreciable extent.

In the midst of these useful reforms, Boulanger was recalled to active service, and gazetted General of Division. Events in Tunis had required a large French force to be kept in Tunis, and he was appointed (February 1884) in command of the army of occupation in that country. On his arrival the war was practically over, and his mission was to effect the pacification of the colony. An instructive chapter might be written on the able administration he displayed in the discharge of a difficult and onerous duty, but we must be content with recording that during the tenure of this office he acquired fresh laurels, and left to join the De Freycinet Cabinet, formed in January 1886.

CHAPTER VI.—Boulanger at the War Office.

M. de Freycinet started on his ministerial career with Admiral Aube, Minister of Marine and Colonies, and General Boulanger, Minister of War. The dual appointments were popular, and gave good earnest of real and practical reforms. Writing of General Boulanger, a Paris journal said: "General Campenon's successor at the War Office is one of the youngest generals in our army. His long and brilliant career embraces two periods wholly distinct. The first, the active period, extends from his nomination to the rank of sub-lieutenant in 1856 to the end of the second siege of Paris. The other, the administrative period, comprehends the fourteen years that followed. In the first period General Boulanger proved as brave a soldier as he was an intelligent and efficient officer. Each step of rank he purchased at the price of a wound."

Entering on his functions, General Boulanger addressed the following general order to the army:—

"The President of the Republic has done me the great honour of appointing me Minister of War.

"With confidence I accept this high mission, persuaded that I shall find in all ranks of the hierachy an absolute co-operation for obedience and devotion



General Farre.

towards our country, of which the army unceasingly gives so many proofs.

"We shall energetically pursue, marching on the road traced by my eminent predecessors, that work of military renovation to which we have devoted ourselves for the past fifteen years.

"Vive la France! Vive la Republique!"

One of the first steps taken by General Boulanger was to surround himself with a *personnel* wholly devoted to Republican institutions, so as to neutralize the influences—hidden, but powerful withal—of men who had taken root in office for many years. At the same time he sought, without delay, to effect important economies, without decreasing the efficiency of the service.

Installed in office, Boulanger at once began to justify the terms of his General Order, and to initiate reforms. His aim was to make these gradual and progressive, and from the first he tried to dissociate politics from the army. At an early date he had occasion to deliver a strong expression of opinion on this subject in the French Chamber. Certain officers of two Cavalry regiments for a long time quartered in Tours had given vent to many anti-Republican sentiments, induced, as was supposed, by constant contact with the surrounding gentry, many of whom belonged to the *ancienne noblesse*. A change of quarters was decided upon, and the two regiments alluded to were sent to less inviting garrisons. This action on the part of the War Minister was called in question by a well-known Royalist deputy, M. Gaudin de Vilaine, who affected to see in thus dealing with the question an application to the army of the *Loi des Suspects*. General Boulanger's answer was dignified, incisive and disciplinary, and his conduct was fully justified by a vote of the Chamber.

Early in 1886 opinion ran high as to the expediency of expelling from France members of royal families who had reigned in that country. Into the merits or demerits of that political and polemical war, it is not within the purview of this paper to enter. The vote entailing the expulsion of royal scions was passed, and on General Boulanger devolved the unpleasant duty of giving effect to it so far as expunging



General Campenon.

from the French Army List the names of two distinguished officers, the Duc d'Aumale and the Duc de Chartres. He cannot altogether be held responsible for this action. His functions imposed upon him the necessity of giving effect to the law as passed. As an executive officer he had positively no option in the matter.

On the expulsion of these brave and distinguished officers, General Boulanger unfortunately was made the subject of a general ovation on the occasion of the Fête Nationale. This ebullition of Republican sentiment—

wholly uninvoked by General Boulanger—caused violent exacerbation of temper among the Royalists, and political feeling ran high in the French Chamber.

In that Assembly, General Boulanger having said that the Duc d'Aumale had addressed an insolent letter to the President of the Republic, the Baron de Lareinty replied:

"Vous insultez un absent: c'est une lâcheté."

To which the President of the Assembly replied:

"Veuillez garder le silence, Mons. de Lareinty."



M. de Freycinet.

To which the Baron rejoined:

"Je répète c'est une lâcheté."

M. le President:

"Je vous rapelle à l'ordre."

General Boulanger:

"Vous m'avez dit, M. de Lareinty, que c'était une lâcheté?"

Baron Lareinty:

"Oui." (Sensation!)

Such was the episode that resulted in the famous Boulanger-Lareinty duel, of which much has been written, while concerning it considerable ridicule has been evoked. Undoubtedly, according to the French code of honour, General Boulanger had no alternative in the matter. He was bound to call the Baron out, and this he did without loss of time. His immediate friends tried to dissuade him from sending a challenge, saying:

"Ce n'est pas l'homme qui a été insulté, c'est le Ministre. Si tous les Generaux savaient que ce duel va avoir lieu, ils viendraient vous supplier de ne pas vous battre."

But the advice was tendered to no purpose.

"I am ready to resign my office of Minister of War," said General Boulanger, "should the President of the Republic desire to dispense with my services; but none of my comrades in arms would ever pardon me, if I failed to keep my honour intact."

The *cartel* sent, of course was accepted. Generals Lecomte and Frébault acted as seconds for General Boulanger; those who performed the like office for Baron de Lareinty were Messrs. de Saisy and Espivent de la Villeboisnet. The now historical duel took place at Meudon in the Parc de Chalais. It was fought under what the French call "dangerous conditions." The distance between the combatants was twenty-five paces, aiming was permitted, and the command "Fire!" dispensed with. Two minutes were allowed for each contending party to adjust his man, a permissive "pot shot," euphemistically expressed in the Code of French duelling, "On a le droit d'ajuster son adversaire."

General Frébault gave the signal, and the Baron de Lareinty fired. General Boulanger did not return the compliment, and the rumours that his pistol misfired are without foundation. The fact is, as stated by his



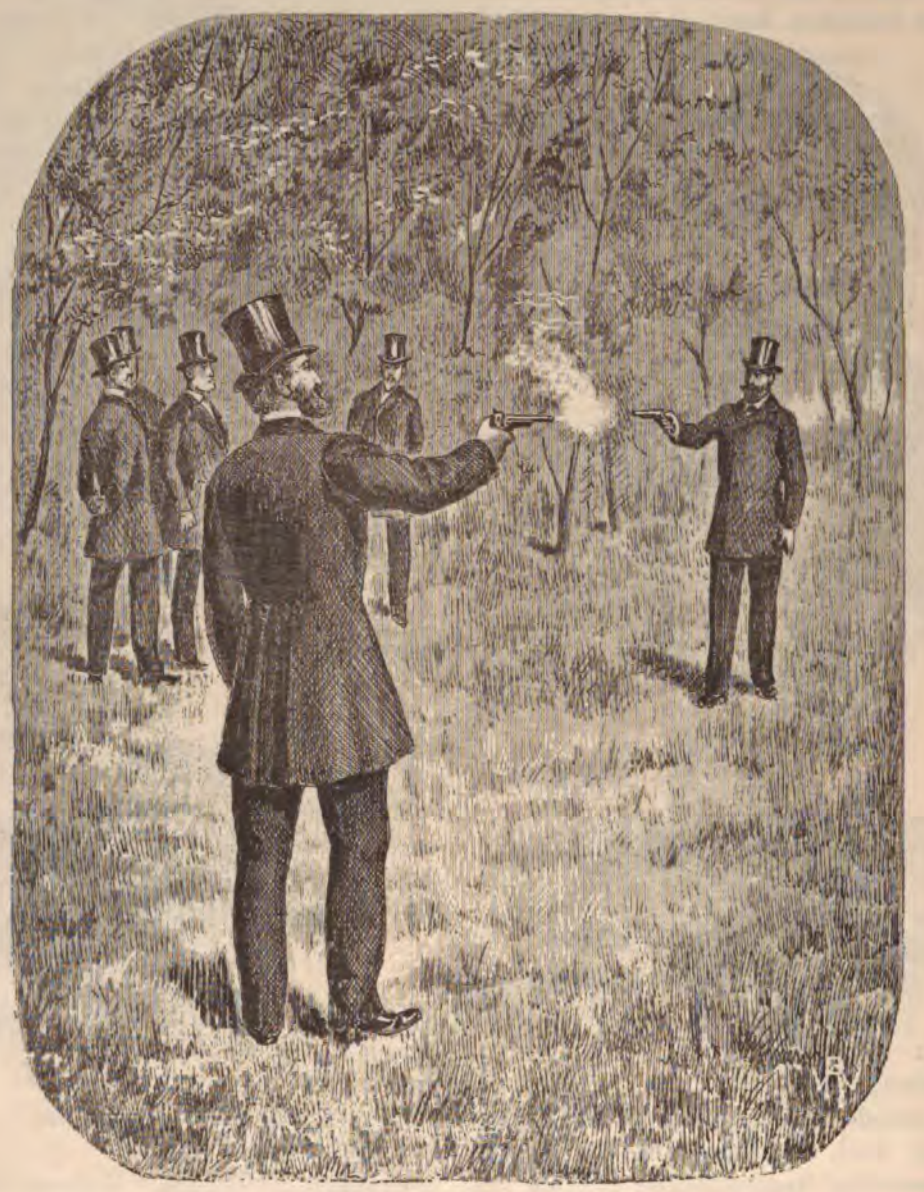
Admiral Aube.

biographer, M. Barbou, "General Boulanger, as he had been the injured party, acted gallantly in not taking advantage of his adversary, an older man than himself, to whom he had left the choice of arms."

So ended the famous duel. The press of this country has overwhelmed it with ridicule. The French, however, appear to have been perfectly satisfied with the result, and Mutual Admiration Societies in Paris lauded the opponents, and declared that honour had been duly satisfied. Such being the case, we have no reason to take exception to this harmless encounter.

CHAPTER VII.—Army Administration.

Dating from that disastrous year, 1870, which witnessed the fall of the Empire, France has had seventeen War Ministers, none of whom has left any permanent impression, during his tenure of office, of an attempt to ameliorate the condition of the French soldier, or to inaugurate in its army sound and solid reforms, with the sole exception of Boulanger. Recognizing, as he fully did, the value of *esprit de corps*, he instituted in each and every regiment the *Salle d'Honneur*. This was to be a spacious room in every barrack, devoted to all receptions and meetings relating to the regimental service and to all reunions and social gatherings of the corps. The room was to be furnished with a statuesque bust representing the French Republic, portraits of its President and of the officers commanding, past and present, together with photographic frames containing, so far as possible, *cartes portraits* of officers, non-commissioned officers, and soldiers of the battalion who had fallen on the battle-field. Having carried this leading idea into the provinces—into every garrison town in France—he further developed this conception by establishing in Paris the Cercle National des Armées de Ter et Mer—an Army and Navy Club on a large scale, a head-quarters for the united services, whether quartered in Paris or there on leave—embracing in itself social and educational advantages, which are not offered by any institution in this country. Were the Royal United Service Institution turned into a service-club, it would to some extent represent the social and scientific combination of the Cercle Militaire at Paris.



Duel between M. de Lareinty and General Boulanger.

brilliant prospects which serve as an incentive to the higher grades of the army.

One of the first steps taken by General Boulanger was to improve the diet of the soldier, up to that time condemned to everlasting soup. When poor Pitou did not get soup he ate *rata*,* and on these two dishes were rung the changes of his dietary. Served twice a day with soup in an unappetising *gamelle*, with only a spoon to eat it, Pitou, unprovided with a fork, had to employ his fingers when dealing with the more solid portions of the meal. The French soldier fed in those days; now, thanks to General Boulanger, he dines.

This important change in the soldier's bill of fare was effected without any extra cost to the State. In a circular addressed to all officers commanding corps, General Boulanger requested them to take the initiative in improving the messing of their men. The first thing done was to abolish the use of the canteen (*gamelle*) in time of peace and to supply crockery to the soldiers. The rank and file now sit down, at each meal, to table, with their soup or stew served in tureens. They are supplied with plates, salad-bowls, knives, forks, spoons, salt-cellars, glasses, table-cloths, and even napkins.

The free ration issued daily to the French soldier consists of 750 grammes of bread, an allowance of coffee and sugar, and 300 grammes of meat. To the above is superadded an allowance of 20 centimes a day, which appears to be a contingent to defray extra expenses, and by the judicious manipulation of this sum the furniture of the mess tables in French regiments is supplied. With economy captains of companies may save 5 francs yearly per man, which would give on the average of 100 men a sum of £20, sufficient to find the *couverts* for the mess.

The bedding of the soldier has also been made more comfortable, and mattresses have been served out in place of the old, ill-smelling palliasses. As to uniform, important improvements have been effected, tending to ease and comfort. In place of the tunic, the *vareuse* has been adopted, plentifully supplied with pockets for holding cartridges. In full dress the yellow belt is worn under the dolman. The rank and file in review order wear the red epaulette, long associated with French Grenadiers. In undress the epaulettes are replaced by shoulder-straps designating the number of the company. The regimental number is embroidered upon the collar.

Studying the convenience of soldiers, especially in view of the Territorial system, Sunday is now in French barracks a day of rest. The men, so far as possible, are permitted to go for the day on a visit to friends, while as to furlough, five days annually are allowed towards the beginning of the year, and eight days at Eastertide.

So far we have chronicled the reforms effected by General Boulanger which have made his name popular in the French Army. With one episode in his career we finish this skeleton sketch of his services, leaving it to our readers to determine whether he has fully merited or not the adulation lately heaped upon him, not only by the military but civil population of France.

In the last week of July in the present year M. Jules



Officers. Full Dress.

The dress of officers consists of a blue cloth dolman without frogs. A row of lace on the sleeves indicates the wearer's rank. The officer's képi differs from that worn by the men only in the quality of the cloth. The képi, mounted on a stiff foundation, is not pliable. In front is a grenade surmounted by the pompon.

Ferry, speaking in his place in the French Chamber, had occasion to use the following words :—

"Were we to believe these new patriots, patriotism would not only be the monopoly of one party, but the exclusive property of certain sections of the party; and all who do not think like them, all who refuse to substitute in the management of the greatest interests of the country the irresponsible compulsion of mobs for the free and reflecting action of the constituted authorities, all who do not adore their idols, and who do not rush with them behind the chariot of a café-concert St. Arnaud—all these are classed indiscriminately as the party of the foreigner."

* This word is an abbreviation of *ratatouille*, which means an indifferent stew of cag-mag. The *rata* and soup are practically alike, with the exception that the former contains less water.

Marshal St. Arnaud, as will be remembered, carried out Louis Napoleon's *coup d'état* of 1851, and General Boulanger fitted the cap by applying to himself the term "St. Arnaud de café-concert."

A challenge from Boulanger quickly followed, but the terms of the duel were wild, weird, and gruesome. The General wanted the combat to last until one party was either killed or wounded, and, failing this, he insisted that lots should be drawn to settle which party should fire first. M. de Cassagnac, an authority on duelling, declared that General Boulanger's conditions were not those of a duel but of a double murder, and that the Japanese custom of self-disembowelling might as well have been adopted. As General Boulanger, when told to his face by the Baron de Lareinty that he was a coward, contented himself with an exchange of shots, he had evidently no right to be more exacting in the case of a gibe in the middle of a speech. By insisting on extreme and unusual conditions General Boulanger plainly meant to make it impossible for his adversary to accept them; for M. Ferry, had he accepted them, would have become odious if he killed the General, and grotesque even in death if he had been killed by him.

On the formation of M. Rouvier's Ministry, General Ferron replaced General Boulanger as War Minister. The events that followed need not be recorded. The outer *boulevardiers* and *voyous* of Paris, assisted by the efforts of "lion comiques" with popular refrains of music-hall songs, endeavoured to make a demi-god of the ex-Minister, and appoint him as the unanointed Apostle of La Revanche. All these circumstances have occurred so recently that a detailed description of them is unnecessary. We decline to predict what General Boulanger's future may be, nor shall we criticise his action in the matter of his proposed apotheosis. We are advised by the historian to distrust our own and the public estimation of all heroes dead within a hundred years; *à fortiori*, why handicap the living? In laying claim to an inflexible verdict, we must consider how oddly our decisions of to-day may sound at the other end of Time's Whispering Gallery.



NEW FRENCH UNIFORMS—CAVALRY, ARTILLERY, ENGINEERS, AND INFANTRY.

A DIPLOMATIC PENJDEH.

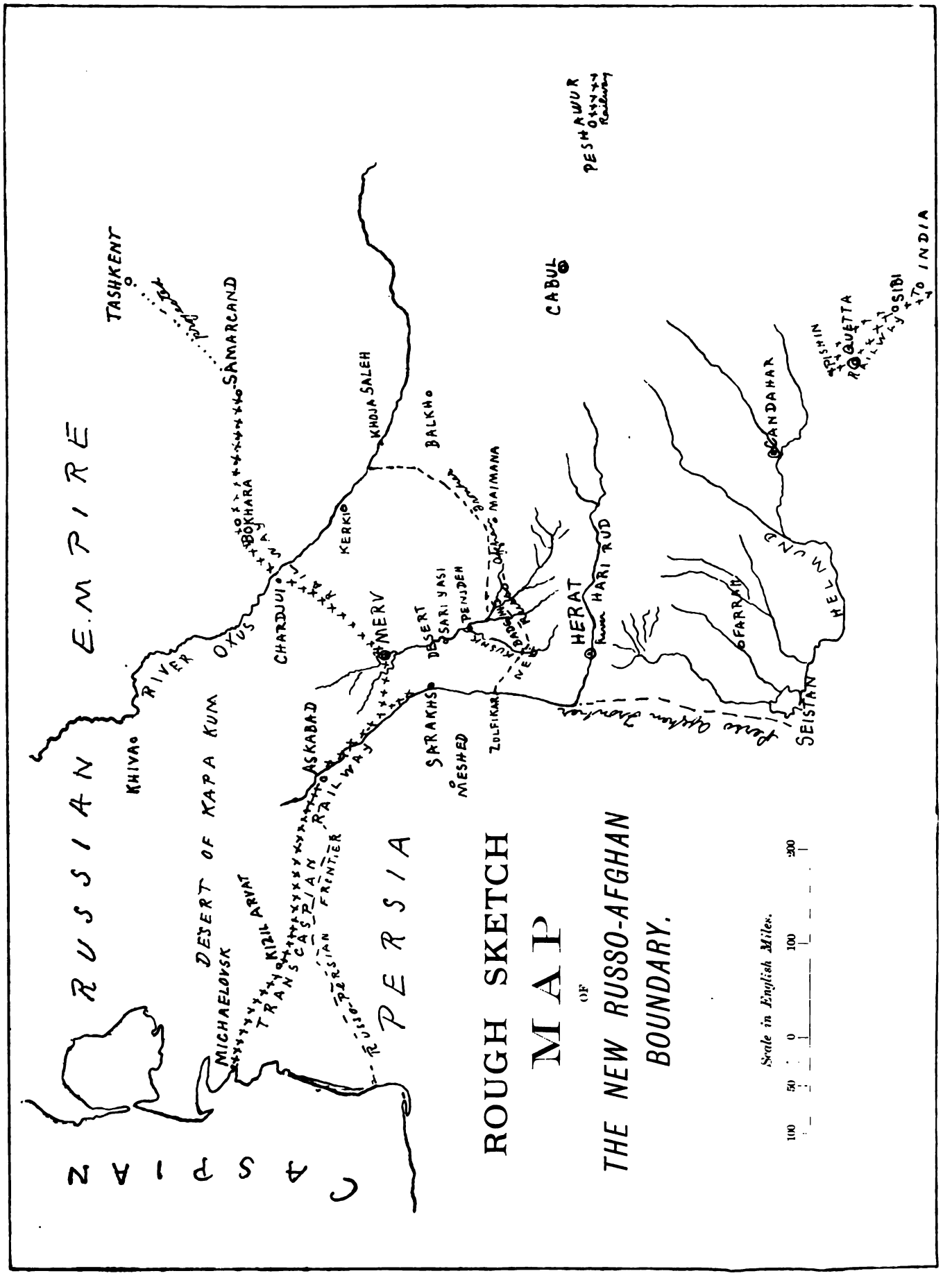
By CHARLES MARVIN.

IT is a striking illustration of the apathy at present prevailing in the army in regard to questions of a military-political character, that not a single soldier's voice should have been raised against the cession to Russia of a new camping-ground within seventy miles of the Key of India. When there was a talk of a Liberal Government surrendering Penjdeh, plenty of hostile criticism was poured upon Mr. Gladstone. A Conservative Government enlarges an outpost lodgment to the proportions of a regular camping-ground of a large army, and all the critics of 1880–85 are silent. Such a partizan treatment of the Russo-Indian problem is not conducive to public confidence in the methods of discussing Imperial questions by military men. It was not thus that the late General Sir Charles MacGregor sought to compel the Government to adopt adequate measures for Indian defence, or that Skobeleff moulded the policy of Russia so as to secure a lodgment close to the Key of India. Military critics should be above suspicion of truckling to any party. It is hardly to their credit that they should leave the question of the defence of India to be mainly dealt with by civilian writers of the Press. If the annexation of the 1,600 miles of fertile country composing the Merv oasis, distant 240 miles from Herat, was, if the public are to believe the military clamour of 1884, an act fraught with danger to the Indian Empire, because it gave Russia a place of arms within easy distance of the Key of India, then surely the cession of fertile country to Russia, half as large as that oasis, within seventy miles of Herat, must either be condemned by those who clamoured three years ago, or else they stand convicted of having egotistically lured the country into adopting an attitude towards Russia, unworthy of any civilized state.

To clearly realise what England has conceded on the fringe of the Herat country, one must look at the matter, not through the dust of defunct controversies, such as the majority of English politicians do, but by the light of living events in the Russo-Afghan region. Step by step, any person who has carefully studied Skobeleff's plans can see Russia gradually securing what that great leader aimed at—a strong pouncing position on the Indian border. While the Turcoman question was yet unsolved, he recommended that the junction of the military forces of Turkestan and the Caucasus should take place at Merv, and that everything should be done, by forcing Ayoub Khan into a feudatory position, to render Russia mistress of Herat. The downfall of Ayoub checked the realisation of a portion of the plan, but the rest has been carried out; and with a vigour and success that would surprise even Skobeleff himself, if he were alive to day. In three short years not only has Merv been brought within the railway system of Russia, but Bokhara also, and part of the road to Samarcand. From being a haunt of raiding Turcomans Merv has become the Key of Russian aggressive operations in Central Asia, and Lord Salisbury has considerately crowned the efforts of the White Tsar by heedlessly giving him a splendid lodgment within a few days' striking distance of Herat. If the future historian will censure Mr. Gladstone for surrendering Penjdeh, he will equally condemn the present Prime Minister for giving up North Badghis. The one yielded Russia an outpost in the Herat country; the other has provided her with the space necessary for the accommodation of an army.

Merv is the concentrating point, on the one hand, of forces sent from Russia proper, *viâ* the Volga, Caspian, and Transcaspian Railway; and on the other, from Siberia and Turkestan, *viâ* the Oxus-Samarcand Railway. The steam communications from Moscow to Merv are complete. Those from Samarcand to Merv are being rendered so as rapidly as possible by General Annenkoff. Roughly, Merv is the apex of the two lines of advance upon India, which, starting from widely divergent points of the Russian Empire, unite in the oasis after traversing short stretches of Turcoman desert. Ever since Russia seized it, she has done her utmost, by new irrigation works, to amplify the food resources of this place of arms, so as to enable it to sustain a large army concentrating there on the eve of war. Her efforts in this direction have been eminently successful, and she is rapidly accumulating a large commissariat reserve in the magazines erected since 1884. Quite recently, moreover, the Government has granted funds for restoring an ancient dam, which will add over a million acres of cultivable soil—soil yielding 170 fold—to the oasis of Merv.

Now, the rapid movement of troops from Merv to Herat is checked by an interval of sandy desert, which closes in upon the river Murghab after Yulatan is reached, and does not leave it as far as Penjdeh, except for a


RUSSIAN EMPIRE
TASHKENT
SAMARCAND
BOKHARA
CHARDJUI
KERKI
KHOJA SALEH
BALKHO
MERV
DESERT OF KARA KUM
SARIYASI
PENJDEH
MAIMANA
HERAT
Kuh HARI RUD
CABUL
PESHAWUR
KANDAHAR
FARRAH
QUETTA
PISHIN
SIBI
TO INDIA
HELMUND
KHIVA
MICHAELOVSK
KIZIL ARVAT
TRANSCASPIAN
CASPIAN
ASKABAD
RUSSO-PERSIAN FRONTIER
PERSIA
SARAKHS
MESHED
ZULFIKAR
SEISTAN
ROUGH SKETCH
OF
MAP
THE NEW RUSSO-AFGHAN
BOUNDARY.
Scale in English Miles.
100 50 0 100 200

brief interval at Sari Yazi. To have to traverse eighty miles of desert at the very outset of an expedition towards Herat and India would involve serious preparations, and prevent a rapid heavy blow. Russia was perfectly aware of this when she seized Merv, and this explains the audacious attempts she made, as soon as Merv was under firm control, to secure a lodgment of some kind or other beyond the strip of desert on the high road to Herat, even at the risk of a war with Afghanistan and England. Very little trouble was experienced in capturing Sari Yazi, and General Komaroff made short work of the Afghans and Sir Peter Lumsden at Penjdeh.

Having obtained a lodgment in the fertile country within the sphere of Herat, it became the policy of Russia to enlarge that lodgment, so as to enable her to place on the very verge of the Afghan frontier a powerful army instead of simply an advanced guard. This aim was attained, partly owing to the skill of the Russian negotiator, Zinovieff, but apparently still more to the inability of Sir West Ridgeway to appreciate the true bearings of the Russian advance. Our envoy is beyond dispute a brave officer, but his recommendation to surrender the lower Kushk district proves that his knowledge of the expansive tendencies of Russia and England is limited, and his strategy at fault. It is not enough to say that by yielding the lower course of the Kushk we saved Kham-i-ab, and that the Ameer has approved of what we have done. The territory ceded is, strategically, fifty times more valuable than the territory saved, and, so far as the Defence of India is concerned, intelligent Englishmen do not care a rap for the strategical views of an Ameer when they have to guide them the opinions of Sir Charles Macgregor and Sir Frederick Roberts.

To excuse the surrender, Sir West Ridgeway asserts that of the 815¾ square miles ceded, 795½ are waste, or, as Lord Salisbury puts it, "desert." But this is absolutely false. The Russian official report describes the country as being generally fertile, and this is borne out by the descriptions of the English officers of the Lumsden mission, who speak of it as resembling the South Downs, with plenty of pasturage on the slopes, and abundance of good cultivable land in the valleys. In other words, it is a country where sheep and camels and horses will thrive, and the crops be nearly as heavy as those of Merv. The Penjdeh Sariks, cramped for room, have been waiting for months to migrate to it, and as they themselves possess three-quarters of a million sheep, they will very soon accumulate reserves sufficient to feed the largest army. What they lack can be made up by the resources of the pastures and fields of Heratis, which now lie *immediately* next to those of Russia, instead of being separated by the eighty miles of desert. Surely, in an area of 800 miles of fertile country, watered by three rivers, there is plenty of elbow room for the concentration of an army. The new arrangement has shifted the stepping-stone to Herat from a distance of over 200 miles to a distance of seventy. The Russians, who could not concentrate the bulk of an attacking force nearer Herat than Paris is to London, can now do so at their ease in a district as close to it as Ramsgate is to the Metropolis. This Sir James Fergusson describes as an event of "no strategical significance." If that be so, all that has been said and done by the Conservative party with regard to the Russian advance for the last fifteen years is sheer bunkum.

It may be well to explain once more in what sense Russian generals regard Herat as the Key of India, because it is quite clear, from the Blue Book on the Afghan Frontier settlement, that neither Sir West Ridgeway nor the Foreign Office appreciate Herat at its proper value; otherwise, of course, Kham-i-ab would never have been regarded as the strategical equivalent of North Badghis. English military men in general are too apt to treat the Herat question by the light of past events, and not by that of the immediate movements of Russia. Were this not the case, it would not have been left to Sir Samuel Baker to crush, without allies, the crude idea of Lord Charles Beresford and others, that the Suez Canal is of limited value, and that we should adopt for our main line of communications with India the venerable roundabout route *viâ* the Cape. As if the adoption of a route 5,000 miles longer, and requiring thirty-seven days for the despatch of troops from Portsmouth to Pishin, could be possibly be a sufficient counterpoise to Russia's ability to place her home troops in sight of Candahar in a little more than twenty days. Well may a writer despair of English policy, when those who ought to know, and are paid to know better, betray such an amazing ignorance of Russia's aggressive power in Central Asia.

Those who are acquainted with Russia's food and transport resources are aware that our rival can concentrate a quarter or a half a million men in the Caspian with the greatest ease. There is no limit to her ability in this respect. The first limitation is encountered only when she proceeds to move those troops from the Caspian to the Indian border. Midway between the two points lies the camping ground of Herat, with its food resources for 150,000 men. Now it does not require much argument to show that if Russia can make sure of those food resources on an outbreak of war, she virtually doubles or trebles the attacking power of the Transcaspian Railway; because trains which otherwise would have to be devoted to the conveyance of provisions, as well as troops, can be devoted to the conveyance of troops alone. This is an elementary fact which is always disregarded by those who express

THE BEHAR LIGHT HORSE.

By JAMES C. DICKINSON, Retired Staff-Surgeon.

IN the days of the Indian Mutiny, when the rich indigo districts of Behar were overrun by a mutinous soldiery, aided by the Budmashes of the country, who at any moment might have destroyed the growing crops upon which large sums of money had been advanced, the want of a volunteer corps was much felt. With the experience of the past, the Indigo farmers of Tirhoot and Behar have considered that it is necessary they should never be placed in a similar position as when Mr. Tayler, the Commissioner of Patna, wrote to Mr. Secretary Beadon saying, "The whole English community at Tirhoot have demanded protection, as they believe that the people will rise and the Nujeebs mutiny. All Buxar and Shahabad fled like sheep and flocked into Dinapore . . . Richardson of Chuprah, writes, that the whole country opposite his Cutcherry on the Ghazeepore Doab, and the people of all the districts to the west of Chuprah, are in open revolt."

The unrequited services of the Commissioner, Mr. William Tayler, are matters of history, but I cannot help remarking that this accomplished civilian was made a catspaw to satisfy the exigencies of what is historically known as the Canning-Clemency-Policy, and which had no greater advocate—to say nothing more—than the Governor of Bengal, Sir William Halliday. The days when Silk Buckingham was ordered to leave Calcutta, because he wrote his impressions of the government of the country, or of the misgovernment which perhaps led to the mutiny—for that is a subject which is *adhuc sub judice*—has happily passed away, and civilians find that the moral and kindly government of the indigo districts is successfully carried on by the planters themselves, and that the opium agents, more or less interlopers, find it to their advantage to recognise the landed gentry—the indigo-planters—who are composed of the wealthy Rajahs and Zemindars, including, among others, the honoured names of Bettiah, Durbungah, and Hutwa, as well as English gentlemen whose fathers before them developed the indigo industry, and gained the good will and affection of the Zemindars and Ryots. Bearing in mind the past history of India, the planters of Behar have wisely established the Behar Light Horse, to defend their homes and families should there be at any future time an uprising.

The first Volunteer Regiment on the Indian Army List, "the Behar Light Horse" of the present day, was organized as "The Behar Mounted Rifle Corps" in September 1862, with the consent of Government. Fifty-three of the planters of Tirhoot having already formed themselves into a corps, they forthwith, on the 16th July 1862 forwarded the following memorial to the Government of Bengal, desiring incorporation, through the Commissioner of Patna:—

"From certain residents in the districts of Tirhoot and Chuprah to the Commissioner of Behar. Sir,—We, the undersigned residents in the districts of Tirhoot and Chuprah, beg to forward through the magistrate of Tirhoot, 'for submission to the Government of India,' our most loyal application to be enrolled as members of a Volunteer Corps.

"During the mutiny of 1857 the want of such a corps within these districts was greatly felt. Had there been such a volunteer force (as now proposed) available, the local officers might have been spared the disgrace of deserting their station, and the services of the Bengal Yeomanry Cavalry, and part of the Naval Police might have been dispensed with.

"Although we have no reason to apprehend a recurrence of a similar emergency, yet still we are desirous of forming ourselves into a corps, whose services hereafter might be found available to the State."

The letter concludes by stating that the corps already numbers fifty-three men, forming a troop for these districts, and which is rapidly increasing. A second troop was shortly afterwards formed in the district of Chumparun. The first commandant appointed was Mr. I. Forlong, and Mr. C. T. Metcalf was appointed lieutenant of the Tirhoot, and Mr. F. Holloway to the Chumparum troop. A copy of the rules were at the same time submitted. To this loyal petition the Government replied in terms of sanction and compliment; the only item in which the rules forwarded did not obtain the unqualified sanction of the Government was the Terry's Rifle, which, not being in store, the corps were supplied with Sharpe's breech-loading carbine.

As the Bengal Yeomanry Cavalry has been incidentally mentioned, I think, as it was the first Volunteer Corps of Europeans raised in India, and contributed so much, in conjunction with General Rowcroft's Force, in restoring order to the rich districts of Tirhoot, Sarum, Chumparum and Goruckpore, it is entitled to a passing notice, inasmuch as the successful raising of

exchanged into the Bengal Staff Corps, and served in the Afghan War, 1879–80, at the action of Jagi Thanna, had his horse shot, and his brilliant services in that campaign were twice mentioned in despatches, and he obtained the Victoria Cross and his Brevet Majority. With all working in perfect harmony, and with one object in view—the thorough efficiency of the regiment—it rapidly attained a high pitch of excellence, and its popularity throughout the Indigo districts may be inferred from the fact that its number rose from 120 to 320 sabres. The admirable work done by Major Vousden, who loved the regiment as if they were his own regulars, cannot be over-estimated.

Great changes have taken place since 1862. In the comparatively short space of twenty-four years, the arms, accoutrements, and uniform of this splendid body of horse, have undergone a complete revolution. Through many different and indifferent variations, adaptations, and re-adaptations, the regiment has now adopted the following uniform, etc., which will probably remain unchanged. The uniform is as follows: Blue blouse breeches, and Blucher boots, white pugree and regulation helmet, with silver spike and chain, black and brown belt, Martini-Henry carbine, and light sword. The Government of India and Bengal have always displayed the keenest interest in the welfare and progress of this regiment. The Lieutenant-Governor is Honorary Colonel *ex-officio*, and has often done them the compliment of coming to inspect them. It was only the great pressure of work and the urgent necessity for his presence in Upper Burma which prevented the Commander-in-Chief from paying the Behar Light Horse a similar well-merited compliment after the Camp of Exercise at Delhi. The Light Horse of Behar are well worthy of such a compliment being paid—a compliment which has never yet been bestowed by a Commander-in-Chief upon any Volunteer Corps. Since Colonel Hudson has commanded the corps, not only has there been the steady increase in numbers, but the troopers are all well mounted; the old Cabulee and stud-bred horse having been supplanted by the large steady waler; and these chargers have been so well selected that it is no mere figure of speech to say that the Behar Light Horse is a crack Cavalry Volunteer Corps.

The visit of the corps to Calcutta at the invitation of their honorary Colonel, Sir Rivers Thompson, is regarded by them as a red-letter day. On the 27th December 1883, this gallant regiment arrived at the Howrah Railway Station, and, forming line, marched through the streets of Calcutta, played in by the band of the 6th Warwickshire Regiment, on to their Barracks and Camp of Exercise at Ballygunge. Crowds accompanied them, and the Planters received from the inhabitants of the City of Palaces an enthusiastic welcome. The regiment lay encamped at Ballygunge for over a week, during which time they went through the exercises and drills, in fact the daily routine of the regular cavalry soldier.

The Behar Light Horse took part along with the Calcutta Mounted Rifles, the Calcutta Naval and City Volunteers, and the regular troops, in the proceedings on Proclamation Day, and also in a sham fight. Again, on the 4th January, they, with the other volunteers and troops in garrison, were paraded at the brigade ground, when they were inspected by His Excellency the Commander-in-Chief. That distinguished cavalry officer, General Wilkinson, commanding in Calcutta, superintended the operations of the sham fight, and was pleased to compliment the Behar Light Horse on their neat and soldier-like appearance, and the intelligent manner in which they had performed their part in the day's proceedings.

It is noteworthy that all the arrangements connected with transport, commissariat, mess, tents, etc. were planned by the members of the regiment, and were carried out by the regimental quarter-master and officers without a single hitch. This is all the more creditable when we remember that the regiment had never been massed together before. There is no question that the occasion was one that will be long remembered by the Corps, and it brought out all those good qualities and comradeship which are always observable among troops of all denominations on the line of march and on active service.

No later than in the January when every honest British heart was wrung by the tidings of the sad and dangerous position in which Gordon was placed, Colonel Hudson called on his six troop-leaders for volunteers for the Soudan, and promptly received an answer that one hundred men and officers were ready. But alas! ere the gallant offer of their services had reached the Viceroy, Gordon had fallen. The Viceroy, in conveying the thanks of Government to the regiment, expressed strongly his appreciation of the value of its services and of its gallant offer of them.

There is a muster *de rigeur* once a month at each troop head-quarters, for two or three days' drill and practice on the range; and at certain seasons, often in the hottest weather—as then it is that the planter can spare the time—the troops muster twice a month. It is only a strong soldierly instinct, and a thorough *esprit de corps*, that give such a result. Men perform such duties for the honour of their country, and with the simple desire that when called upon they may be ready to do credit to their manhood.

Brigadier-General Wilkinson, a most distinguished cavalry officer, commanding the Allahabad Division, inspected the regiment last year, and the Assistant Adjutant-General was directed by him afterwards to write to Colonel W. B. Hudson, and to convey to him

Nepaul frontier for 300 miles since the Segowlee Cantonment was abolished, at a critical moment their services would be most important.

The corps supply their own horses, and every cavalry officer who has inspected the regiment has acknowledged it to be the best-mounted in India. The corps also supply their own uniform, etc. and bear all expenses of messing, &c. at annual camps of exercise and monthly parade meetings. Colonel Hudson is just now endeavouring to induce Government to make some allowance for travelling expenses when attending drill musters, many of the men having to ride and drive fifty miles to the head-quarters of the troops to parade for drill.

When it is remembered the sacrifices, not only of convenience and time, but also of "coin of the realm," which most of the members of this corps make, and many of its most efficient members young indigo-planters, it is a marvel how so many men manage to attend every troop-drill muster. The corps muster 300 sabres, but could easily be raised to 400, were it not for the expense which many young "assistants" cannot afford. A certain capitation and travelling allowance should be granted to all volunteer corps in India, as is done in England; and it is the opinion here, among those who, from their Indian experience, know the incalculable value of such corps in time of need, that if the matter is fairly represented to the present Viceroy and Governor-General of India, His Excellency will give his most favourable consideration to it. The volunteers of India are an important military body, and the practical mind of Lord Dufferin will unquestionably induce his Lordship to see that certain privileges should be granted to members of existing Volunteer corps.

Mr. Rivett-Carnac, of the Bengal Civil Service, is a great champion of the movement, and in October 1884 submitted to the Lieut.-Governor of the North-West Provinces proposals for increasing the force of armed Europeans and Eurasians in the several Provinces of India, and for working thereto a reserve of native pensioned soldiers, to be employed as orderlies, &c. under the Civil Government. Mr. Rivett-Carnac, after adverting to the fact that there are 72,000 adult European and Eurasian males estimated as capable of bearing arms in India and British Burma, goes on to show that at the close of 1883 "there were then in India and Burmah 12,421 Volunteers scattered over the country, divided into 49 corps." He then proceeds to show the great progress of the Volunteers in the North-West Provinces, making reference to "the excellent example of the Behar Light Horse," and he represents the difficulties to be encountered in arming the Europeans at the last moment.

On referring to the Army List, it is satisfactory to find that the Indian Volunteer Corps are widely spread over India. In the Punjaub there are three administrative battalions. In Calcutta there are the Presidency Volunteers, comprising Calcutta and the Eastern Bengal Railway Volunteer Rifle Corps and the Calcutta Volunteer Rifle Corps. In the North-West Provinces there are eleven corps, to say nothing of the East Indian Railway Volunteer Rifle Corps. In Northern Bengal—throughout the tea districts—in Burma, Madras, and Bombay, Volunteer corps have been raised, numbering in all forty-three regiments, which are all infantry corps with the exception of the Behar Light Horse.

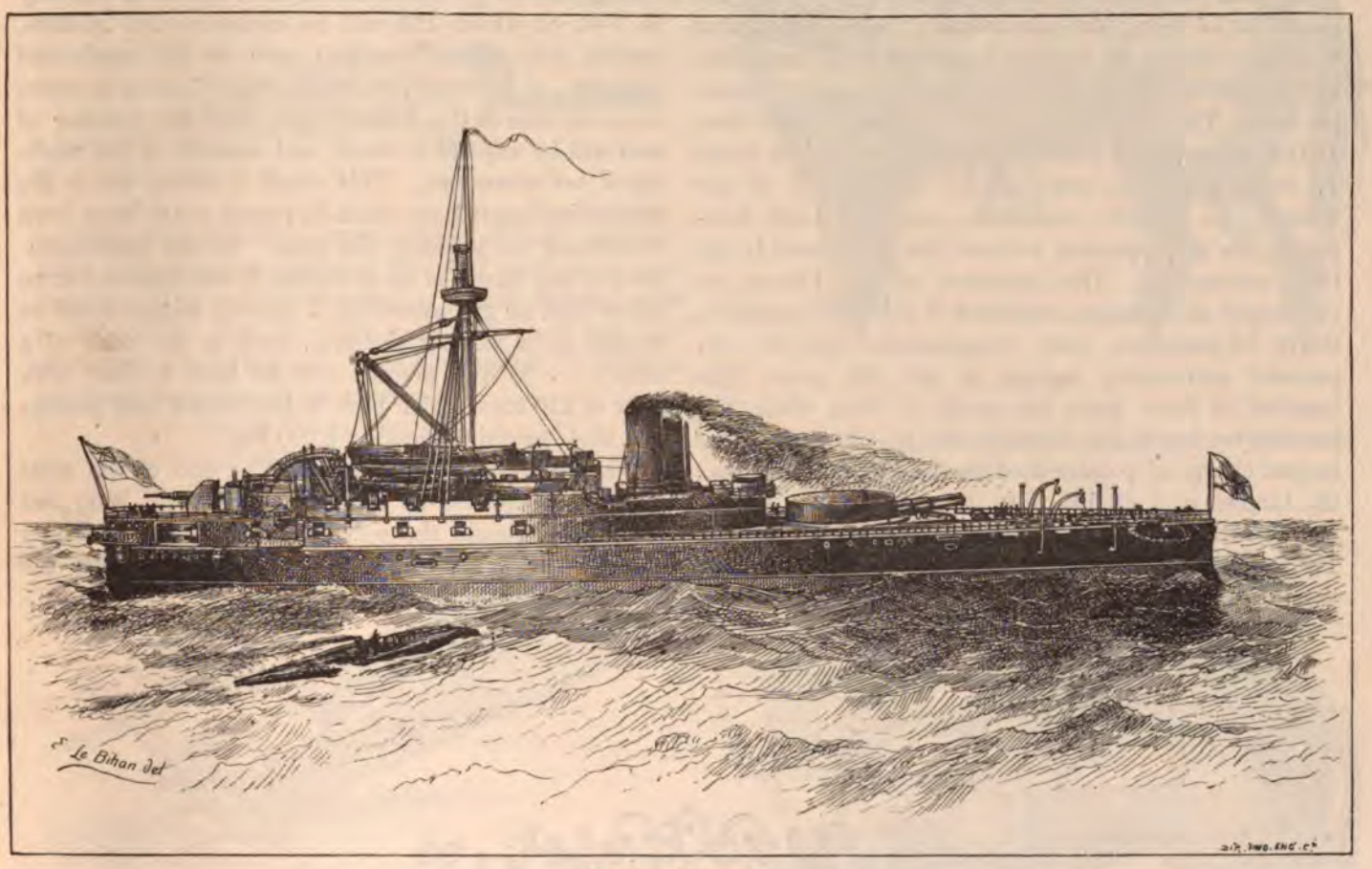
From the details that have been given, the reader will notice that the popularity Army Volunteers in India have obtained is due entirely to their own soldier-like conduct. It is to be hoped that Government will encourage the movement in every possible way, so that instead of having, as at present, only 12,421 Volunteers, there may be enrolled the greater number of the 72,000 Europeans and Eurasians capable of bearing arms, whose value in the event of an outbreak it is difficult to over-estimate. I am indebted to Colonel Hudson, and his friend who writes under the *nom de plume* of "Grave and Gay," for most of the details in this article, which it has been a pleasure to write. I might have said a great deal more about the camp-drills, reconnoitring, and sham fights, "but are not these things written in chronicles of the *Gazette* which is penned in the land of Behar"?

J. C. D.

[I hope to have the pleasure of receiving from the Commandant of every Volunteer corps in India a short account of the rise and progress of his regiment, together with a drawing or two—coloured if possible—of an officer and private.—EDITOR.]

H.M.S. "VICTORIA."

ON April 9th last—a day memorable in the history of Tyne shipbuilding—H.M.S. *Victoria* was successfully launched from the yards of Lord Armstrong, Mitchell & Company at Elswick. The name *Victoria* was given to the new vessel almost at the last moment, in honour of Her Majesty's Jubilee, instead of the title *Renown*, by which it was originally proposed the ship should be known among the armour-clad leviathans of the world. She was laid down in June 1885, and will probably be ready for sea in the summer of 1889. Armament, engines, and fittings will be supplied by her builders, who have undertaken the entire contract for her construction.



H.M.S. "VICTORIA."

The *Victoria* is a single-turreted armour-clad, 340 feet in length between perpendiculars, 70 feet in beam, and of 10,500 tons displacement. Her upper deck is 11 feet 6 inches above the water-line; and abaft the turret, which is carried well forward, is a spar deck extending to the aft extremity of the ship. She is protected at the water-line by 18-inch steel-faced armour, which extends along the sides opposite the machinery compartments, magazines, &c. to the height of the main deck. The base of the turret, and the mechanism for working the turret and the loading arrangements, are protected by a redoubt of the same thickness of armour, the turret itself by 17 inches. The vessel has twin-screw machinery, with a united indicated horse-power of 12,000. The coal storage is sufficient for 1,200 tons.

The armament of the *Victoria* consists of two 110-ton guns, one 25-ton gun, twelve 6-inch, and about 30 smaller guns. She is also provided with six torpedo tubes above the water-line. The two 110-ton guns, carried in the turret, have considerable range around the bow, and to about 45 degrees abaft the beam

on each side. The 25-ton gun is carried on the spar deck aft, and also has considerable range. The twelve 6-inch guns are carried upon the upper deck and under the spar deck; the smaller guns upon the spar deck and in military tops.

On the occasion of the launch, Lord Armstrong made a striking comparison between the new *Victoria* and the old *Victory*, "so like in name, and yet so different in all things else." "The *Victory*," he said, "was one of the largest ships of her day, but her displacement was only 3,500 tons, while that of the *Victoria* will be 10,500. The *Victory*, in accordance with the usage of the time, was built of oak; the *Victoria*, in accordance with the present practice, is built of iron. The *Victory* was propelled by wind, over which man has no control; the *Victoria* will be propelled by steam, over which man has a perfect mastery. The *Victory* had the character of being an extraordinary quick sailer, and when the wind in its vagaries happened to be exceptionally propitious, she could attain a speed of nearly 13 knots per hour. The *Victoria*, propelled by engines of more than 12,000 horse-power, may be expected to achieve about 17 knots per hour, and will be independent of the wind." As regards armament, continued Lord Armstrong, the disproportion between the two vessels is yet more astounding. The armament of the *Victory*, as she fought at Trafalgar, consisted of thirty 32-pounders, thirty 24-pounders, forty 12-pounders, and two 68-pounder carronades, making in all 102 guns. The heaviest of these guns was under 3 tons, while the heaviest on board the *Victoria* will be 110 tons. The largest charge of powder used on the *Victory* was 8 lbs., the largest shot 68 lbs.; on the *Victoria* the largest charge will be 900 lbs., and the largest shot 1,800 lbs. The weight of metal discharged from the broadside of the *Victory* was 1,150 lbs., against 4,750 lbs. from that of the *Victoria*. The power of the broadside is, however, better estimated from the amount of powder consumed than the weight of metal discharged. While the broadside fire of the *Victory* consumed only 325 lbs., that of the *Victoria* will consume 3,000 lbs. "In point of range, accuracy, penetrating power, and shell power, the difference is so great in favour of the *Victoria*, that a comparison would be ridiculous." In the fighting days of the *Victory*, continued Lord Armstrong, ramming was little practised, and torpedoes were wholly unknown. In these respects, therefore, no comparison can be drawn. But there is another point of view in which the *Victoria* compares highly favourably with the *Victory*, and that is in the smallness of the number of officers and men required to handle and fight the ship. The complement of officers and men on board the *Victory* was 850, while on board the *Victoria* it will only be 550, of whom 110 will be engineers and stokers, leaving only 440 officers and men in the combatant capacity. "Although, therefore, the *Victoria* is three times the size of the *Victory*, only half the number of men will be exposed to death and wounds in the working of her armament. This result is chiefly due to the mechanical appliances which in recent years have been introduced for working the guns. At the commencement of my career as an artillerist, it was regarded as an axiom that no gun exceeding 5 tons in weight could be worked on a moving platform, such as the deck of a ship. . . . At the present day we have to deal with guns of 110 tons, which have to be charged with powder and shot, weighing together 2,700 lbs."

When complete, the *Victoria* will be one of the most powerful ironclads in the British Navy. Who can doubt that, should the occasion arise, she will worthily emulate the deeds of the old *Victory*, and justify the honoured name she bears?

YOKING CAVALRY HORSES FOR GUN-HAULAGE.

(From the *Journal des Sciences Militaires.*)

IN France a series of experiments have been carried out on the above subject, wherein the object aimed at was to improvise a way of harnessing cavalry horses, and to employ them for hauling heavy guns in cases of necessity, or where other modes of transport are not available.

A detachment of twelve men and one commissioned officer is told off to two horses for gun-haulage. For



FIG. 1.

harness, the picketing ropes and nose-bags only are used. The bags are folded in four and carried *en bandoulière*. The ends are doubled over, and fastened with a knot as in Fig. 1. Two men with ropes are told off to one man with bag. Thus four squads or sections are formed, numbered as under:—

1. For "near" horse.
2. For "off" horse.
3. For swinging bar.
4. Reserve.

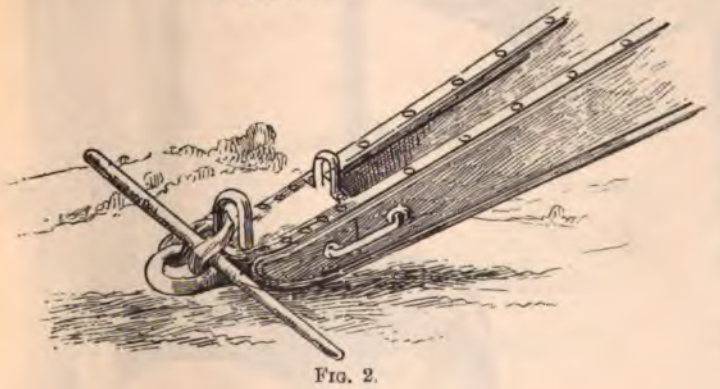


FIG. 2.

A man of No. 3 takes the swinging bar or whipple-tree, and places it in the centre (Fig. 2) through the ring which is lifted vertically on its hinge. The other men tie it securely with the rope passed over the bar, and through the ring (eight laps). One man holds the bar, while the others make the knots, and haul them taut.

During the above operation, a man of squad 1 and another of squad 2 place the folded bag on the horse's chest as a breast strap. The ropes attached to it are



FIG. 3.

brought up in a slanting direction, and securely fastened at the cantle of the saddle (Fig. 3).



FIG. 4.

This done, four men rig up rope traces doubled, and join them to the gear attaching, the nose-bag to the



FIG. 5.

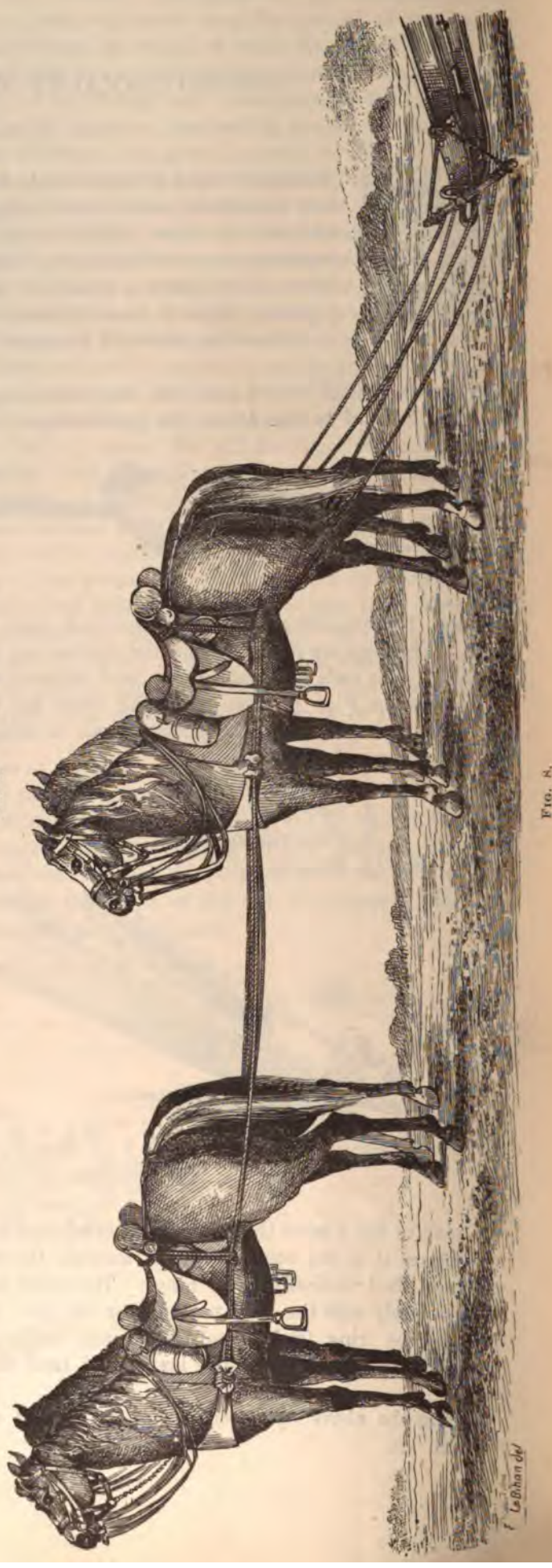


FIG. 6.

saddle at an angle of 90 degrees. Should the gear be made too tight to the cantle, one of the knots must be undone (Fig. 4), and the rope eased until the necessary amount of "slack" be obtained.

The rope traces are then attached to the ends of the whipple-tree, with the following mechanical result :—

As the relation between oblique and direct force is in proportion to the cosines of the angles of these forces

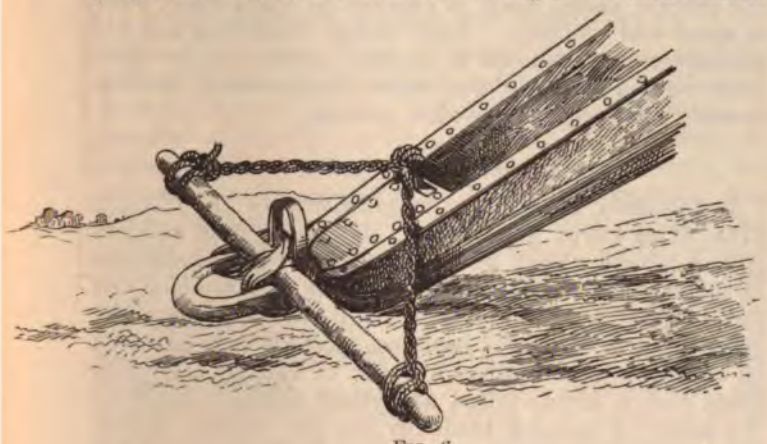


Fig. 6.

at the point of application, we obtain the following formula :

$$F' \text{ (oblique force)} = \frac{F \text{ (direct force)}}{\cos \alpha \text{ (angle of forces)}}.$$

To counterbalance the oblique force thus entailed by yoking without a pole, the draught is effected *en charrue*, by which means the inside traces cross to make the traction equable. By this arrangement—

1. The right trace of the "near" horse fastens on the right of the large ring of the elevating gear (Fig 5).

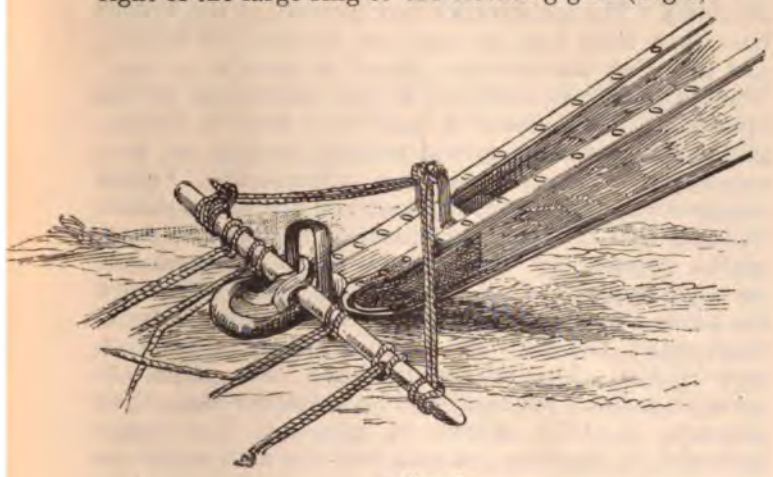


Fig. 7.

2. The left trace of "off" horse fastens on the left of the same ring (Fig. 5).

To counterbalance the lateral movement of the elevating gear, a rope doubled is passed through the small eye on the transom, and forms an isoceles triangle, the base of which is the whipple-tree or swinging bar (Fig. 6).

It will be observed that the knots binding the above to the swinging-bar pass outside the trace knots, giving greater security to the latter, and preventing them from being jerked off when passing over broken ground (Fig. 7).

The men of the 4th squad or section follow the gun, and are supplied with spare ropes and bags to make good any deficiency caused by breaking or snapping of the gear.

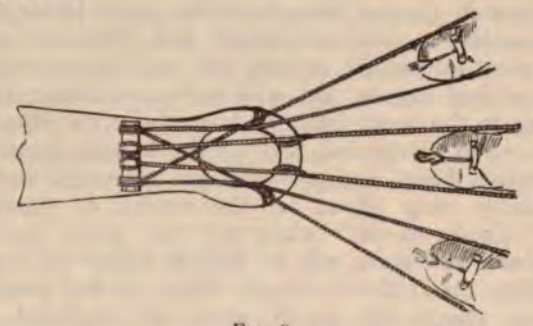


Fig. 9.

Although it is possible to gallop with the above mode of yoking, the trot is preferable. At the gallop the elevating gear is naturally raised from the ground. At the trot it forms a natural skid or slipper.

Yoked in the above fashion, trials have been made with a field-gun, without its limber, of 80 mm. weighing 426 kgs. They were conducted on the manœuvring ground at Belfort over rough stones and broken banks, deep ruts, etc., and notwithstanding these natural obstacles, the results in haulage were satisfactory.

For heavier guns (95-mm. for example) it was found necessary to employ four horses when the traces of

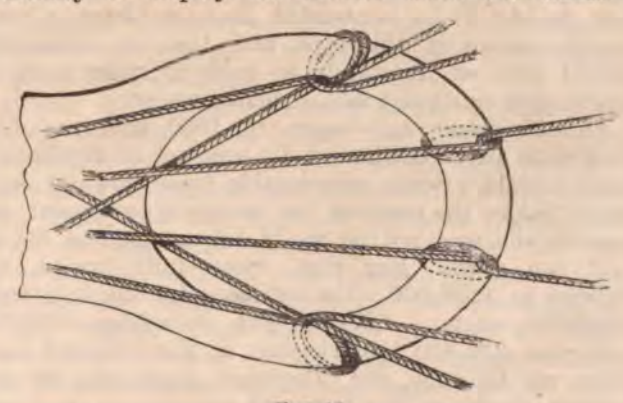


Fig. 10.

the leaders were fastened on behind the breast-strap of the wheelers (Fig. 8).

When even more force is required, three or more horses can be yoked abreast, and their traces brought through the eye of the transom, as indicated in Figs. 9 and 10. In this event, the power exerted on the elevating gear may raise the bar from the ground, when the self-acting skid will be no longer existent. In this case some artificially applied brake must be employed.

EDITORIAL.

The Launch of the "Trafalgar."

The launch of the *Trafalgar* at home and French mobilization abroad have been the chief topics during last month to interest Naval and Military minds. Both were important events, not only in common with England and France, but with reference to any possible fighting in the near future. Her Majesty's Ship *Trafalgar*, when completed, will be the largest ironclad in the British Fleet, and probably the strongest and most formidable ship afloat on the waters of the world. Her "displacement," when all her guns, crew and stores are on board, will be 12,000 tons. One marked speciality about the new-born vessel, is her ponderous armour which will weigh, when all mounted, 4,232 tons. In vital parts it will be 20 inches thick of iron faced with steel; the deck plates being of 3-inch steel, and the armour belt tapering off, fore and aft, to 14 inches. Sixteen inches of mail will be on the citadel, and on the turrets 18 inches, together with numberless bulkheads and interval shields of plate protecting the upper and lower decks. The armament of the *Trafalgar* will be four steel breech-loading 67-ton guns, with 8-inch breech-loaders in her "box battery" as well as machine, Hochkiss and light, quick-firing pieces with torpedo tubes.

A more than ordinary interest attaches to the launching of the *Trafalgar*, from the fact that she and her younger sister, the *Nile* (shortly to be launched at Pembroke), may possibly be the last of the line of first-class armour-clad fighting ships that England may ever build. It is contended that we have already enough vessels of this type, and that the Admiralty should now set resolutely to work to make good deficiencies in our quick-sailing belted cruisers.

The *Trafalgar* was begun in 1886, and has been built with an expedition wholly unusual in the case of large vessels. Some considerable time, however, must elapse before she receives her complete equipment, and possibly she may not be ready for commission for the next two years. Her cost, when fully armed, will amount to £920,000; the estimate for the hull being £686,000, engines £97,000, gun mountings £79,794, and guns £56,340. Of rigging, in the ordinary sense, there will be none, the *Trafalgar* depending for propulsion wholly on her powerful twin-screws, and with these and her twelve hundred tons of stowed coals she can steam at ten knots for seven thousand miles.

The pride that we may feel as a nation at the launch of the *Trafalgar* must be small in comparison to the pleasure felt at the new departure taken by our Admiralty, which department has awoke from a too long protracted slumber, and is now putting its shoulder to the wheel with energy and good will. The department has already mended many of its old vices, and can rival the private yards, when it chooses to exert itself, both in speed and economy. Lord George Hamilton and his colleagues have shown a genuine desire to do their work well, and verily they have their reward, for the country fully appreciates their services.

French Mobilization.

In the early days of the mobilization of the French 17th Army Corps last month, the authorities suffered from a severe attack of "spy mania"; the gendarmes in the provinces were ordered to keep a sharp look-out for anyone in German guise, and, to accentuate the order, several obviously harmless persons were arrested on suspicion, among them a sister of charity collecting alms, and a highly-gifted analytical chemist studying the cause of ravages made by the phylloxera. Under these circumstances it cannot be a matter of surprise that the German Press refrained from sending any representative to the region of the 17th Army Corps. The military critics in Berlin have been driven, in estimating the success or failure of the late mobilization, to indent on the opinions expressed by the French press, and to draw conclusions wholly from them. The *Kreuz Zeitung* of Berlin, the organ of the military party, writes as follows: "The organization went off smoothly and the very defects that were brought to light with regard to the Intendance Department, the field bakeries, and other matters, are of advantage to the French, who will now carefully study all these faults, and devise remedies. The mobilization has shown that the French have done their best to copy our methods of arming, and that they can mobilize almost as soon as we can." The German press, however, is not unanimous in this opinion. The *National Zeitung* says that, in reality, the mobilization has proved nothing, and is, at best, calculated to lead astray the inflammatory French imagination, both of the commanders and of the public. Granted that the recent mobilization has been an unexpected success, yet the experiment is comparatively valueless as a test of the speed and efficiency with which the whole French army could be called under arms at short notice, and concentrated in position on the German frontier. That the French have made great progress in military efficiency and organization since their disasters in 1870 cannot be gainsaid. The praise bestowed by Parisian journals and German critics on the recent mobilization must be freely discounted in face of the French official report on the subject, which contains severe strictures on the Staff and Commissariat Department. The French War Minister has already ordered a minute inquiry to be made, and it is probable that several officers will be removed for inefficiency.

REVIEWS.

Events in an Irish Country House in 1880. By Etoile. (John Hayward, London and Manchester.)

This little tale, albeit published last year, may be read with advantage at the present time, when attention is concentrated on the sister Isle, and Separation is paraded under the guise of Union. The author, to quote his own words, "aims at no beauty of style, but ventures on the precipice of telling the truth." And what in this instance is the truth? Just this, that "the rascals who had attempted to carry desolation and misery into the family were not Irishmen at all, but some of the scum of an Atlantic city, who play upon the credulity of others." Just so. Yet those in high places would have it believed that persons who can use such instruments as these to further national ends are fit and worthy to be entrusted with the destinies of an Empire. Out upon such daring falsity of purpose. The real aim and object of Home Rule is to enable its advocates to sit upon the Treasury Benches; it is a mere party move of the most transparent description. To characterise such want of patriotism is tempting but dangerous. It were much to be wished that every Home Ruler would read Etoile's pamphlet; it is short, it is cheap, costing but a few pence, and withal it is an honest attempt to open the eyes of the public to the villainy that they are asked to promote, and the rascality anent which they are implored to lend a hand. The author advocates the construction of Harbours of Refuge, and makes other suggestions which deserve consideration, to induce capital to flow into, instead of *out* of Ireland.

Historical Record of the 44th or the East Essex Regiment. By Thomas Carter. (Gale and Polden, Chatham.)

A glorious regiment were "the two fours," look at their colours: "The Sphinx," "Egypt," "Badajoz," "Salamanca," "Peninsula," "Bladensburg," "Waterloo," "Ava," "Alma," "Inkerman," "Sevastopol," "Taku Forts," are each and all emblazoned on the regimental colours. Well may the Honourable Sir James Yorke Scarlett, when presenting the new colours in 1857 have said that it was "no feather-bed regiment." Forsooth no—a corps which fought at Waterloo, to what was annihilation in Afghanistan, which braved all the danger and hardships of the Crimean War, need fear no chance of hostile criticism on the score of "kid gloves" and "patent leather boots." It is therefore with the greatest pleasure that we invite the attention of our readers to the most excellent historical record of this fine old fighting regiment, prepared by Thomas Carter of the Adjutant-General's Office. Perhaps the fact that the volume has reached a second edition speaks for itself, and further commendation is unnecessary; but it would scarcely be fair to pass without a word of praise this most carefully prepared account of the present East Essex Regiment, which it may be explained, is not merely a "catalogue raisonnée" of the campaign of a brave body of men, but a readable narrative such as may with advantage be employed to while away a fitful hour in company with as brave a set of heroes as ever pulled trigger in defence of queen and country. Mr. Carter has done his work conscientiously, and an evident spirit of *con amore* underlies the various chapters, and the regiment ought to be as proud of their "historiographer" as the latter is of the corps whose deeds of bravery he has set himself down to chronicle and record.

Peggy Thornhill. A Tale of the Irish Rebellion. By Mary Damant. (W. H. Allen & Co.)

Towards the close of the eighteenth century, or to be exact, in the year 1798, the position of affairs in Ireland was both both curious and fraught with danger. From time immemorial the Celts and Catholics, conquered in body but unsubdued in soul, had long been inspired with a spirit of undying hate towards the dominant race. Again and again their animosity had broken out in fearful violence, being as quickly repressed with cruel reprisals. But at this time several new factors came on the scene. The tenant farmers of Ulster were chafing under the grievance of land legislation. and thus Presbyterian and Papist were united against the Government. French influence and Gallic intrigues were also rife, finding the people ready to listen to the insidious voice of treachery, consequent on the success of the Americans in winning their own independence. So it chanced that wild dreams of freedom and fanciful visions of an emancipated and prosperous Ireland fired the race animosities of an enthusiastic people. Now was Ireland's opportunity.

It was in the midst of these scenes of hatred, vengeance, bloodshed, and misery that the tale of *Peggy Thornhill* is placed before the reader. The heroine is sister to an enthusiastic and mad-brained young student who, fired with the spirit of national independence which at that time swept and desolated the land, threw himself, with the characteristic fervour of youth, into deep and dangerous plots for the emancipation of "Ould Ireland" from the hated grasp of the Saxon. Then follow scenes of fearful sadness—homes desolated with fire, the inmates wandering outcasts on the face of the earth, cattle destroyed in the sheds without a hand to open the doors which would have afforded the poor terrified beasts escape and safety, fugitives, fleeing for their lives, shot down like dogs wherever a chance presented itself, gibbets in full swing, corpses dangling at the roadside tree—the very furies of the nethermost regions would fain have cried "Enough!"

It may well be imagined that there is plenty of scope in the midst of such elements of danger and discord to form the basis of a thrilling tale of fiction. There are scenes of love, scenes of death, scenes of murder, scenes of devotion, scenes of courage, scenes of cowardice, scenes of patriotism, scenes of villainy. The heroine, too, a modest, winning maiden, inspires admiration,

alike for the innate virtues which lent grace to a graceful daughter of Erin, as for the unchanging and unabated confidence which she placed in the integrity and uprightness of her misled and sinning brother. It is a pretty story, prettily written, and thoughtfully worked out. Without any pretence to high art, it is calculated to amuse, and, centring as it does, on Ireland's troubles and Ireland's woes, appears opportunely at a time when public attention is concentrated upon the problem of the sister Isle.

The Indian Civil and Military List for July 1887 needs no comment in these columns. For many years past it has attained a reputation for accuracy which is fully maintained in the present volume. Of course in a shifting population of upwards of 20,000 names errors are unavoidable; all that can be done is to reduce them to a minimum. As to simplicity of arrangement and fulness of information there is nothing more to be desired. Messrs. Allen must be congratulated upon the satisfactory, and, it may be hoped, successful results of their enterprize and public spirit.

SUMMARY OF ARTICLES IN FOREIGN SERVICE MAGAZINES.

REVUE DU CERCLE MILITAIRE—ARMÉES DE TERRE ET DE MER. (Paris: 37, Rue de la Bellechasse.)

The Austrian Kiel (Pola)—The New Field Regulations of the German Army—The (English) Army and Navy Club—Night Attacks—The Defence of Holland—Prince de Lignés ideas on Cavalry—Marshal Macdonald.

REVUE DE CAVALERIE. (Paris: Librairie Militaire Berger Levrault et Cie, 5, Rue des Beaux Arts.)

The Cavalry of the Corps d'Armée—Montbrun, by General Thoumas (*conclusion*)—Some Episodes of the Charge of Morsbronn—Report of M. de Cormette on his Remount Mission to Germany in 1883 (*conclusion*).

REVUE MARITIME ET COLONIALE. (Paris: Librairie Militaire de L. Baudoin et Cie., 30, Rue et Passage Dauphine.)

Combined Land and Sea Operations (*continuation*)—Travels in Senegambia (by Dr. Bayol, Lieut. Governor of Senegal)—The Archives of Marseilles (*conclusion*)—Historical Studies of the French Navy (*continuation*).

REVUE MILITAIRE DE L'ÉTRANGER. (Paris: L. Baudoin et Cie., 30, Rue et Passage Dauphine.)

The Organization of the Landsturm in Austria-Hungary (*continuation*)—The First Call of the Reservists in Russia (*conclusion*)—The Field Regulation, of 23rd May 1887, for the German Army—The Organization of the Italian Army (*continuation*).

JOURNAL DE LA MARINE. Le Yacht. (Paris: 50, Rue Saint Lazare.)

The Spanish Navy—Launch of the *Melpomène*—The English Naval Manœuvres—The Use of Oil at Sea—The German Gunboat *Eber*.

JOURNAL DES SCIENCES MILITAIRES. Revue Militaire Française. (Paris: L. Baudoin et Cie., 30, Rue et Passage Dauphine.)

The Officer and the Superior Cadres (*continuation*)—The Recruiting of Cavalry (*conclusion*)—The Artillery of the Corps d'Armée—The French Army and Navy before the Revolution—Army Transport (*continuation*).

NEUE MILITAERISCHE BLAETTER. (Potsdam: Villa Schwanenbrücke, Post: Klein Glienicke).

The Work of the General Staff on the Campaign of 1864—Paris and the North-East Frontier, II.—The Changes in the Italian Army during the Year 1886—The Present Condition of the Russian Army.

MITTHEILUNGEN AUS DEM GEBIETE DES SEEWESENS. (Pola: Druck und Commissionsverlag von Carl Gerold's Sohn in Wien.)

The Use of Photography in Determining the Effect of Projectiles on the Surrounding Air—On the Use of Submarine Boats for War Purposes—The Launch of the Turret-ship *Kronprinz Herzherzog Rudolf*.

MITTHEILUNGEN UEBER GEGENSTAENDE DES ARTILLERIE- UND GENIE-WESENS. (Wien: Druck und Commissionsverlag von R. v. Waldheim.)

Recent Changes in our (the Austrian) Engineer Field Equipment—Russian Artillery Trials in 1885—C. Koettschau's Ideas on Fortifications.

RIVISTA MILITARE ITALIANA. (Roma: Voghera Carlo, Via Nazionale).

Notes on the Infantry Rifle—On Irregular Army Transport (*conclusion*)—The Austro-Hungarian Army—The Defence of Constantinople.

RIVISTA MARITTIMA. (Roma: Tipografia del Senato.)

Italian Sailors in England—The Use of Petroleum as Fuel—Submarine Telegraphic Communication—The Italian Naval Estimates (*continuation*)—The Training of Seamen in Foreign Navies.

REVISTA CIENTIFICO MILITAR. (Barcelona: Bailen, Numeros 25 y 27.)

Cavalry in the Field—Notes on the European Frontiers (The Belgian and Dutch Frontiers)—Torpedoes and Torpedo-boats—The Artillery of Antiquity and the Middle Ages.

THE RIFLE. (Boston, Massachusetts, 4, Exchange Place.)

Telescopes for Riflemen—Care on the Rifle Range—The Modern American Pistol and Revolver (*continuation*).

THE AUSTRALASIAN NAVAL AND MILITARY GAZETTE. (Melbourne: 130, Collins Street, West. Sydney: 91, Pitt Street.)

Treatment of Foreign War Ships in Time of Peace—Mounted Infantry—Balloons in Warfare—The Mobilization of the Australian Troops—The Naval and Military Forces of Victoria.

AT THE PLAY.

The theatrical world is rapidly recovering from the usual summer torpor. The St. James's company, it is true, is still on tour, and Mr. Toole will not be among us until December; the Lyceum and the Criterion are also temporarily occupied by alien companies, but most of the other theatres are getting into harness as usual.

Early in last month Drury Lane began its autumn season with "Pleasure," a new drama by Mr. Paul Meritt and Mr. Augustus Harris, which, it need hardly be said, owes its chief attractions to the scene-painter and mechanician. The earlier scenes present us with admirably-painted views of Oxford, while the later take us to the Riviera, and introduce us to the earthquake of last spring. Probably a better piece of stage management than this last has never been put upon the boards, while for beauty of arrangement and correctness of detail, the Battle of Flowers at the Carnival at Nice has seldom been beaten even by Mr. Harris. We have put the scene-painters first, a position they quite deserve, and next should come the actors, who do their best with the material provided for them, especially the ladies. Miss Alma Murray contrives to steer clear of offence in a most disagreeable part, and Miss Fanny Brough is excellent as usual as a vivacious American. Mr. Harry Nicholls, too, is amusing, and Mr. Sass as oily a villain as anyone could desire. Mr. Gardiner cannot be blamed for not rendering the hero interesting, for no actor could redeem his vicious selfishness.

The authors alone cannot be congratulated. We do not expect much truth to nature at Drury Lane or the Adelphi, still less do we look for witty or apposite dialogue, but we do expect—and it must be added, generally get—a healthy, if somewhat high-flown, tone, and this is conspicuously absent from "Pleasure."

At the Lyceum Miss Mary Anderson has produced "A Winter's Tale," and has succeeded in amply pleasing the eye, but neither the ear nor the understanding. She starts with the inartistic mistake of doubling the parts of Hermione and Perdita—a mistake for which it would have taken a great deal to atone, and for which Miss Anderson offers little atonement, but that of beauty and gracefulness of pose—and adds to it that of altering Shakspere's words. Her Perdita is, however, often acceptable, though too self-conscious, and is far better than her Hermione. She is well supported by Mr. Forbes Robertson as Leontes, Mr. Macklin as Polixenes, and Miss Sophie Eyre as Paulina, though the latter looks far too young for the part, especially in the last act, and a word of commendation should be given to Miss Tilbury, who throws much spirit into the few words given to Mopsa. Mr. Charles Collette throws also a great deal of spirit into Antolycus, but we should have preferred a little less noise, and a little more humour. Mr. Fuller Mellish speaks Florizel's lines atrociously, and both he and others of the company, including Miss Anderson, are often inaudible; Mr. Stephen's Old Shepherd is like a very mild father in a farce, and his son is as bad. The rest of the cast calls for no special comment. The scenery by Mr. Hawes Craven, Mr. W. Perkins, Mr. Walter Hann, and Mr. W. Telbin is worthy of all praise and will doubtless draw many spectators to the house, while the really graceful and admirably-managed dance at the sheep-shearing is worth seeing of itself.

The Haymarket has reopened its doors under the management of Mr. Beerbohm Tree, with a most efficient company, an excellent programme, and every prospect of success. "The Red Lamp," by Mr. Outram Tristram, resumes its interrupted run with its old cast, except that Mrs. Beerbohm Tree replaces Lady Monckton as the Princess, with a success that was hardly expected, the part being outside the line in which Mrs. Tree has hitherto distinguished herself. The principal piece was preceded by a new *lever de rideau*, by Messrs. Walter Besant and W. Pollock—or rather a new translation of a well-known original—entitled "The Ballad-Monger." The interest of this excellent little piece is well sustained by Mr. Beerbohm Tree, Mr. Brookfield, and Miss Marion Terry, while Mr. Stewart Dawson plays capitally in a small part.

At the Novelty, under the management of Miss Harriet Jay, Mr. Robert Buchanan's piece, "The Blue Bells of Scotland," has been presented to the public. The story is a conventional one, and offers little that is new, either in the way of incident or character. Mr. Henry Neville gives a manly and energetic rendering of the hero's part, and Mr. Arthur Elwood makes the best of a difficult *rôle*, but the rendering of the other parts does not rise above mediocrity. The scenery is well managed for the size of the stage.

At the Comedy a success is loudly claimed by Messrs. G. Manville Fenn and J. H. Darnley with "The Barrister," which is one of the three-act farces or farcical comedies now so common. The succession of incidents which involve the Barrister in continual misfortune, keep the audience well amused; but the fun is not of the most refined—the allusions are more than dubious, and of plot properly so called there is none. The acting is fairly good, Mr. Darnley, one of the authors, takes the part of the Barrister in what is supposed, we presume, to be a "Wyndhamy" manner, but is never still for a minute. Mr. Fred Mervin (excellently made up) and Mr. Milton were each good in their way. Among the ladies, Miss Susie Vaughan distinguished herself, and delivered the dialogue with much point, but with a somewhat artificial mannerism.

At the Globe, where "The Doctor" is still the principal piece in the bill, the management have added a new *lever de rideau* by Mr. Charles Thomas, called "Lady Fortune," which is well written, and stands out in agreeable contrast to the majority of first pieces. Mr. Thomas has not, however, been very fortunate with his actors, for, although Miss Cissy Grahame has shown herself capable of a manner at once natural and effectively incisive, she is not seen to advantage in this play. Mr. Andrews, too, who plays Guy Mallory the lover,

fails altogether to enlist our sympathies for him, and Lord Amberley (Mr. Graham Wentworth), who is meant to be ridiculous, is made the more attractive of the two. There is both point and imagination in the construction and dialogue of this little play, and we could have wished to see it better represented.

At TOOLE'S, which Mr. John Clayton has taken for an autumn season, while his new theatre in Sloane Square is being built, Mr. Pinero's old favourite "Dandy Dick" reappears. The cast has two important changes in it, Mr. Alfred Bishop replacing Mr. Arthur Cecil as Blore the butler, and Miss Eva Wilson taking the part of Sheba lately filled by Miss Norreys. Mr. Bishop gives a rendering, entirely his own, of the hypocritical butler, and interprets it quite as effectively as Mr. Cecil, though very differently. Miss Wilson copies her predecessor in every tone and every attitude, a course which we cannot but think mistaken, since she constantly suggests Miss Norreys without equalling her. She however looks the part well, and would be acceptable if we could avoid comparisons. Mr. Clayton as the dean is as good as ever, so good that one regrets the mere farcial scenes, when he is in Sir Tristram's coat and cap, and longs to get him back to his apron and gaiters; both he and Mrs. John Wood seem to have polished and improved the rendering of their parts since last we saw them—which is saying a good deal. The rest of the cast is as good as ever, especially Mr. Kerr's Major Tarver and Miss Linden's Hannah, and a word of praise should be spoken for Mr. Lugg's admirable rendering of the few words given to the groom. Miss Lewes mars a careful performance by a rough pronunciation of her r's, which grates terribly on the ear. "Dandy Dick" is now preceded by a new comedietta by Mr. A. M. Heathcote, called "Woman's Wrongs," which was well received. The subject is a well-worn one, and the piece is very slight, but is well acted by Mr. Kerr, Miss Cudmore, and Miss Roche; the latter gave an amusing and unexaggerated picture of an advocate of woman's rights, and Miss Cudmore played a young wife bitten by the same mania very brightly and prettily.

The GAIETY has been occupied for a short time by that boisterous bit of horseplay called "Fun on the Bristol," with Mr. John Sheridan in his clever rendering of the Widow O'Brien, and Miss May Livingstone as Bella, the black slavey. The piece can hardly be dignified with the name of a play, but it has much humour of a noisy sort, and some wit, and the audience appear to be amused with the perpetual pantomime "rally" that is kept up throughout. Mr. T. E. Somers was really funny in the mock pathos of a negro ballad, and Mr. F. Darrell sang well. Before these lines are in print it will have been withdrawn to reappear shortly at the OPERA COMIQUE, and the boards of the GAIETY will be occupied by an addition to the many burlesques on "Esmeralda."

At the OLYMPIC a drama by Mr. R. C. Carton and Mr. Cecil Raleigh, called "The Pointsman," has been produced under the management of Miss Agnes Hewett. The story is of the melodramatic order, but has some freshness and originality, and the manageress has the advantage of Mr. E. S. Willard's help in her company. He returns to his familiar part as the villain of the piece, and is as telling as ever. The scenery is well managed, and Miss Agnes Hewett herself is successful in her part, but the rest of the cast is below the average.

At the PRINCESS' Miss Cicely Richards succeeds Miss Catherine Lewis as Biddy Roonan in "The Shadows of a Great City," and Mr. Forbes Dawson replaces Mr. Bassett Roe as the detective Arkwright.

Miss Lydia Thompson has re-opened the STRAND with "The Sultan of Mocha," a comic opera, the music of which is by Mr. Alfred Cellier. Miss Violet Cameron appears in it, and the cast is a fairly competent one; but the libretto is not worthy of the music.

Pieces that have been running for some time.

ADELPHI.—"The Bells of Haslemere," melodrama. Mr. W. Terriss, Mr. Cartright, Mr. Beveridge, Miss Millward, Miss Clara Jecks, Miss Annie Irish, &c., and a farce.

CRITERION.—"Our Boys," comedy. Mr. David James, Mr. G. Giddens, Miss Rose Saker, Miss E. Vining, &c. and "A.S.S.", Mr Blakeley.

GLOBE.—"The Doctor," farcical comedy. Mr. W. S. Penley, Mr. H. Kemble, Miss Vane Featherston, Miss M.A. Victor, Miss Fanny Enson, &c., and "Lady Fortune."

HAYMARKET.—"The Red Lamp," drama. Mr. Beerbohm Tree, Mr. Brookfield, Mr. Allan, Mr. Sugden, Mr. Pateman, Miss Marion Terry, Mrs. Beerbohm Tree, Miss Filippi, &c., and "The Ballad-Monger," Mr. Beerbohm Tree, Mr. Brookfield, Mr. Stewart Dawson, Miss Marion Terry, &c.

PRINCE OF WALES'.—"Dorothy," comic opera. Mr. Ben Davies, Mr. Arthur Williams, Mr. Hayden Coffin, Miss Marie Tempest, Miss Florence Dysart, &c., and "Jubilation,"

PRINCESS'.—"Shadows of a Great City," melodrama. Mr. J. H. Barnes, Mr. H. Parker, Mr. J. L. Shine, Miss M. Rorke, Miss Cicely Richards, &c.

SAVOY.—"Ruddigore," comic opera. Mr. G. Grossmith. Mr. R. Barrington, Mr. R. Temple, Mr D. Lely, Miss G. Ulmar, Miss Jessie Bond, Miss R. Brandram, &c., and "The Carp."

TOOLE'S.—"Dandy Dick," farcical comedy. Mr. J. Clayton, Mr. Alfred Bishop, Mr. H. Eversfield, Mr. F. Kerr, Mr. Denny, Miss Laura Linden, Mrs. John Wood, &c., and "Woman's Wrongs."

VAUDEVILLE.—"Sophia," comedy. Mr. Thorne, Mr. Leonard Boyne, Miss Kate Rorke, Miss Larkin, Miss Rose Leclerc.

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THE MOST ANCIENT AND MOST NOBLE ORDER OF THE THISTLE.

By MAJOR J. H. LAWRENCE-ARCHER.

ALTHOUGH this Order is described as "Most Ancient," in the Statutes of King James II. (VII. of Scotland) promulgated in May 1687, its antiquity beyond, at any rate, the reign of King James V., has been denied by some of the highest authorities, and the tradition of its origin in the ninth century, has latterly been seldom repeated by writers on the subject. Yet, as an example of legends of the same class, it is not without a certain interest.

According to the pleaders for its antiquity, the Order of the Knights of St. Andrew, or the Thistle, arose in the following manner:—

"Athelstane, a Danish Prince—to whom Alfred the Great had given the Kingdom of Northumbria—invaded the South of Scotland, then inhabited by the Picts, in the year 790, and brought their King, Hungus, to bay at Haddington, where, feeling his numerical inferiority, after posting his guards and sentinels, the latter betook himself to prayer, and while so engaged, falling asleep, he dreamt that he saw St. Andrew the Apostle standing by him, and promising victory—which vision he declared to his people—and the next day, as soon as the battle began, St. Andrew's Cross (in form of a Saltire, whereon he suffered martyrdom) appearing in the air, it so terrified the English, and animated the Picts, and Scots (whom King *Achaius* had sent to their assistance), that the latter obtained a signal victory, and slew Athelstane."

This reminds us of Constantine's experience at the battle of Saxa Rubra; but it ought not to be lost sight of, that Eusebius himself ingenuously narrates, that, some years afterwards, venturing to ask the Great Emperor if he had really seen the vision attributed to him, the latter, in his own peculiar manner, tossed his head back, with a smile, but made no reply!

The tradition continues:—"The Scots succeeding the Picts in those countries, have used the figure of that Cross ever since, in their banners and ensigns; and, in the year 819, Achaius instituting an Order of Knighthood, gave the cross of that Saint for its badge. This Order then consisted of thirteen persons (alluding to the twelve Apostles . . .), but was much refined by King James V., who, being honoured with the *Garter* from England, the *Golden Fleece* from the Emperor, and *St. Michael* from France, he celebrated the festivals of them all; and setting up their several arms with their Orders of Knighthood about them, over the gate of his palace of Linlithgow, he erected his own, with the Order of St. Andrew (1540) in the midst of them."

As a matter of fact, a sculptured knightly collar, similar to that of the present Order, is to be seen over the gate of that palace; but whether, as stated, the Order then consisted of the original number of knights, is doubtful.

The Order is said to have fallen into desuetude about the time of the Reformation, and not to have been restored until King James VII. created eight knights, framed statutes for their guidance, and gave the Chapel of Holyrood House, Edinburgh, to be their chapel. But the unfortunate Prince was prevented completing his design, and the Order again became dormant, until December 31st, 1703, when Queen Anne signed new

statutes, and, on the 4th February 1704, received into the Order the Dukes of Argyll and Athole, the Marquis of Annandale, and the Earls of Dalkeith, Orkney, and Seafield.

In the meantime, the knights appointed by King James VII., 29th May 1687, were as follow, exclusive of the King, who was declared Sovereign:—the Earl of Perth, Duke of Gordon, Marquis of Athole (Tullibardine?), Earl of Arran, Earls of Seaforth, Melfort, Dalkeith, Orrery, Mar, Loudon, Stair, Portmore, Duke of Atholl, and the Marquises of Annandale and Lothian.

King George I., on the 17th February 1715, confirmed the statutes already signed by Queen Anne, with the addition of several more. "Rays of glory" were, by one of the latter, placed round the whole figure of St. Andrew (the badge); and although, previously, elections and installations had been dispensed with, His Majesty ordered that they should, in future, be observed, and at the same time, he also confirmed Queen Anne's adoption of *Green*, as the colour of the Order, instead of the previous "blue Tabby (?) watered ribband" of her predecessor. There were then (1715) thirteen knights, including the Sovereign.

The Order subsequently received additional statutes, at the following periods:—17th July 1717, 8th May 1827, and 14th August 1833; and now consists of the Sovereign and sixteen* knights, exclusive of Princes of the Blood Royal.

According to the "Peerage" of 1881, the Officers of the Order are, the Dean, Rev. Dr. Macleod; Secretary, Major Richardson; Lyon King of Arms, G. Burnett, Esq.; and Usher of the Green Rod, F. P. Round, Esq., etc.

The forms and ceremonies of the Order are purely conventional, and were obnoxious to the Scotch Presbyterians, who regarded them, and, indeed, the very revival of the Order by James II. or VII., as another indirect attempt by that monarch, to restore the influence of the Papacy, which had, from the earliest times, been the special patron of the Chivalric Orders. In consequence, the Chapel of the Knights at Holyrood was reduced to a ruin. But time and the diffusion of knowledge have brought about a better feeling; and the severe "northerner" has, as a rule, gradually come to regard such things, from a purely secular point of view, and even to applaud their æstheticism. The chapters of the Order, are held with some pomp and ceremony; but, beyond wearing the badges peculiar to them, the Officers of the Order dispense with the costume—"a green satin mantle, lined white, and having the Cross of St. Andrew embroidered on the left side." The "badges" of the Secretary and King of Arms, it may be observed, are similar. They are surmounted by the imperial crown, and suspended, either from a green ribbon, or from the gold collar representing the Thistle alternately between two pens in saltire—the latter, in the Usher's collar, being represented by *rue* sprigs.

The *Habit* of the Order consists of a dark green velvet mantle; surcoat and trunk hose of cloth of silver, with green ribbons; pearl-coloured stockings and white shoes, with garters and strings of green and silver. The *Badge* is of enameled gold, and represents St. Andrew, standing on a green mound, in a green gown and purple surcoat, bearing his cross, in white enamel, before him, the whole surrounded by eight principal clusters of golden rays. The *Jewel* is similar to the Badge, but is a medallion enclosed in an oval astragal, encircled by the Motto of the Order, "*Nemo me impune Lacessit.*" The *Collar* is of enameled gold, and consists of a *thistle* between its two leaves, alternating with sprigs of *rue* interlaced, in saltire, the former being the ancient badge of the *Scots*, and the latter that (according to tradition) of the *Picts*, and emblematic of loyalty, because supposed to have been an antidote against poison (treason).

The Collar of the Thistle is the proper regimental badge of that famous old regiment, "The Royal Scots," but, for some unexplained reason, it does not appear upon any of the appointments of the corps.

The *Star* consists of St. Andrew's Cross of silver embroidery, with rays issuing from the angles of the Cross. In the centre—encircled by a green fillet inscribed in gold with the Motto of the Order—on a golden field—the Thistle proper, heightened with gold. It is worn on the left side.

This Star appears on the appointments of the Royal Scots, the Royal Scots Fusiliers, etc.

Lastly, the *Ribbon* (to which the Jewel is attached when the Collar and Badge are not worn) is green; and the Festival of the Order is held on St. Andrew's Day.

The Order at present comprises:—

The Sovereign—the Queen.
H.R H. the Prince of Wales.
H.R.H. the Duke of Edinburgh.
H.R.H. the Duke of Connaught and Strathearn.
H.R.H. the Duke of Cambridge.

The Earl of Mansfield, Duke of Argyll, Lord Napier, Earl of Stair, Duke of Athole, Earl of Southesk, Earl of Minto, Marquis of Lorne, Lord Colville of Culross, Marquis of Bute, Duke of Buccleugh, Duke of Hamilton and Brandon, Marquis of Lothian, Duke of Montrose, Earl of Fife, Earl of Dalhousie.

* When an ordinary knight receives the *Garter*, as has occasionally happened, it has been the custom for him to resign the *Thistle*.

THE FRENCH CUIRASSIERS.

Part II.

THE charges of the Cuirassiers at Waterloo form one of the most glorious pages in French military annals. Rarely in war has such reckless courage been displayed as that of the Cuirassiers whom Ney led against the British squares with such disheartening failure. The defeat of the Cuirassiers at Waterloo was far more glorious to them, and to the French army, than many victories.

The first great charge of the day occurred when Ney, having failed in his attack on Picton's Division, received from Napoleon the reinforcement of Milhaud's division of Cuirassiers. "At Napoleon's order," says M. Thiers, the French historian of the battle, "the Cuirassiers of Milhaud, who were drawn up behind d'Erlon's troops, crossed the field of battle from right to left, and took up a position behind the First Brigade, which Ney had already led several times against the enemy. On the arrival of these eight splendid regiments, it was generally felt that the supreme moment had come, and that a decisive charge was about to be made. They were met with a general cry of *Vive l'Empereur!* to which they heartily replied. General Milhaud, in passing near Lefebre-Desnœttes, who commanded the Light Cavalry of the Guard, said "Je vais attaquer, soutiens-moi." The latter, taking this as an order from the Emperor, followed the Cuirassiers, and formed up his troops behind them. With such a splendid force at his disposal, Ney was not the man to remain quiet under the harassing fire of the English artillery, and he gave the word "Charge!" burning to justify his words to Drouot, that if things were left to him, he himself would break the English army."

A description of the charge that followed would require considerably more space than is at present at our disposal. The French Cuirassiers fell first upon Alten's division of Infantry, formed in square. Although terribly shaken by the charge, the British succeeded in keeping their formation, closing up the gaps as they occurred, and pouring in a murderous fire upon the enemy. In some cases, the terrific weight of men and horses overcame even the triple rows of bayonets, and dangerous gaps were made, through which the Cuirassiers penetrated to the interior of the square. Few, however, escaped alive. The gap, as a rule, was promptly closed up; those within were bayonetted, and those without commenced their task afresh. In a contemporary English account we read: "The Cuirassiers frequently came out singly from their ranks, and challenged individuals to the attack; some of the British troops wished to be allowed to accept the invitation, but were refused by their officers. If any of our men fired, they immediately rushed into that spot, and attempted to break the square. The 42nd Regiment opened, and permitted them to come in, and in the centre destroyed a considerable number. They rode round the squares as if they were fortified towns; and on neither side did anyone fire, until he was certain of his aim. Never was a battle fought with such desperation. Some of the Cuirassiers made their way to the very rear of the British lines, and two or three galloped back, shouting, and brandishing their swords. After receiving the whole fire of a battalion, one man still kept on his horse, and had the temerity to cut with his sabre at the infantry as he passed. A Hanoverian met him in combat and wounded him; he would not give up his sword, however, but to an officer. His enemy was on the point of putting him to death, when an officer interfered and saved his life."

When the defeat of the Cuirassiers seemed certain, Kellerman arrived with another reinforcement of 3,000 fresh troops; and the attack was renewed with more fury than ever. The 69th Regiment, taken unprepared, was almost cut to pieces, and several other English corps suffered severely. Several Cuirassiers penetrated to the third line of the English, where they either fell by the bayonet or bullet, or galloped back to renew the charge. Some even regained the French lines by turning the wood of Hogoumont. Despite, however, their utmost exertions, the Cuirassiers could make no more than a momentary impression on the English squares; and the reinforcements of Kellerman were almost exhausted, when the heavy Cavalry of the Guard came to their assistance, without, it is said, the orders of Napoleon. A final and desperate charge was now made by Ney's whole cavalry; but the waves of steel-clad horsemen broke in vain against the British bayonets. In the words of M. Thiers: "Ney s'obstine et ramène jusqu'à onze fois les dix mille cavaliers au combat, tuant toujours sans pouvoir venir à bout de la constance d'une infanterie, qui, renversée un moment, se relève, se reforme, et tire encore."

The losses of the Cuirassiers on this day were enormous. Scarcely an officer escaped unhurt. The shattered remnants that rallied round Ney at Rheims

comprised but a fraction of the Cuirassiers who had followed the brilliant cavalry leader in his first great charge at Waterloo.

By a decree of 16th July 1815 the French cavalry was completely reorganized. Its strength was fixed at forty-seven regiments, six of which were Cuirassiers. The King in his scheme of reorganization endeavoured to create an entirely new army; and in reforming the Cuirassiers he broke up the old regiments as much as possible. The 1st Regiment of Cuirassiers, for instance, was formed from the survivors of the old 4th and 10th regiments; the 2nd Regiment from the 6th and 12th; the 3rd from the 2nd and 8th; the 4th from the 1st and 7th, and detachments of the 10th; the 5th from the 11th, and the 6th from the 3rd and 9th. Each regiment consisted of four squadrons. The old division into "companies" was now abolished. In addition to the six regiments of Cuirassiers above enumerated, the Royal Guard, consisting of eight regiments of cavalry, comprised two of Cuirassiers.

In 1825 the French cavalry was again reorganized. Four regiments of Cuirassiers, numbered 7, 8, 9, and 10 were formed from the Dragoon regiments bearing corresponding numbers. Each was composed of a staff and six squadrons. In 1834 the Cuirassier regiments were reduced to five squadrons each, and they retained this organization until 1854, when they were once more raised to six squadrons. In the latter year the Imperial Guard was formed, comprising one regiment of Cuirassiers; and in 1855 another regiment was added. These two regiments of the Guard took part in the Italian campaign of 1859. The whole Cavalry Division of the Guard was mobilized under General Morris; and the 1st and 2nd Regiments of Cuirassiers, forming the 1st Brigade, took an important share in the battle of Solferino. In 1865 one of the two regiments of the Guard was disbanded, and in 1866 the 6th squadron in all Cuirassier regiments was again suppressed. This organization was not altered until the close of the Franco-German war.

The charges of the Cuirassiers at Wörth (6th August 1870) recall those of Waterloo in desperate courage and recklessness. Marshal MacMahon had with him, on this occasion, the cavalry division of the 1st Corps d'Armée, and the 2nd Division of Cavalry Reserve. The former, commanded by General Duhesne, consisted of three brigades, the third of which, under General Michel, was composed of the 8th and 9th Cuirassiers. The 2nd Division of Cavalry Reserve, commanded by General Viscount de Bonnemains, was composed as follows:

1st Brigade (General Girard), 1st and 4th Regiments of Cuirassiers.

2nd Brigade (General de Brauer), 2nd and 3rd Regiments of Cuirassiers.

General Michel's brigade was formed at Brumath on 29th July. On 4th August it left for Haguenau, and encamped on the 5th near the village of Eberbach.



Charge of the Cuirassiers at Eylau.

The Bonnemains Division had left Lunéville on the 2nd August, reaching Haguenau on the 4th. On the 5th, the division encamped on the north-east of the village of Reichshoffen to the right of the Bitche-Wissembourg road.

At six o'clock on the following morning the battle of Wörth opened with a desultory artillery-fire. The Cuirassiers immediately took up their positions, the Michel Brigade on the plateau before Eberbach, the Bonnemains Division before the woods of Elsasshausen and Fröschwiller. By 11 o'clock the French, attacked by more than double their own strength, began to lose ground, and Marshal MacMahon was forced to call his reserves into action. A desperate attempt was made at the same time by General de Lartigue to capture the village of Gunstett, which the Marshal had neglected to occupy early in the action. Crossing the river Sauer with his infantry, General de Lartigue took the village, and succeeded for a short time in holding the plateau

commanding it, but was eventually driven back by superior numbers. A fresh attempt an hour later was equally unsuccessful.

In the centre, before Wörth, the fight had been raging since six o'clock, but the action did not become serious for the French until the 5th German Corps d'Armée opened fire in support of an attempt to take the village and the heights which commanded it. Although Mac-

de Lartigue ordered the 8th Cuirassiers to take them in flank. By some yet unexplained mistake, General Michel took with him not only the 8th but the 9th Cuirassiers, and the 6th Lancers. The 8th Cuirassiers, led by General Michel in person, showed the way, leaving at a gallop for Morsbronn. The ground over which the brigade was called upon to charge was peculiarly unfitted for cavalry operations. It consisted for the



COLONEL OF THE 1ST CUIRASSIERS OF THE ROYAL GUARD (1816).

Mahon pushed forward all his available troops to prevent this movement, his position at 1 o'clock, when the Crown Prince arrived on the field, had become desperate. The German infantry had crossed the Sauer at Spachbach, the artillery at Gunstett; Morsbronn was taken, and General de Lartigue's division, which had run short of ammunition, was in full retreat. Recognizing that the whole issue of the battle lay in preventing any farther advance of the Germans from Morsbronn, General

most part of a series of slopes, covered with apple-orchards and hop-yards, under cover of which the German infantry shot down the advancing horsemen at almost point-blank range.

The regiment suffered first from the fire of a detachment posted at Albrechtshauserhof; but more serious opposition was offered a short distance farther on by two regiments of infantry deployed in line. Slipping through the intervals, or by the flanks of the enemy, two

squadrons of Cuirassiers turned Morsbronn, while the remaining two charged directly into the streets of the village. Here the gallant horsemen were shot down by scores from the houses on each side, occupied and loop-holed by the Germans. Some troopers, charging in a straight line, fell under the fire of a fresh detachment arriving from Durrenbach and Walbourg. The

The 9th Cuirassiers, who had charged immediately after the 8th, reached Morsbronn by way of Gunstett, suffering severe loss on the way from the enemy's rifle-fire. They charged, like their predecessors, straight into the streets of the village, but, unlike them, were unable to make their escape. No sooner had they entered the place than all avenues of exit were closed



Cuirassier of the Imperial Guard (1855).

greater number turned abruptly to the right when half way through the village, and regained the heights, where they were rejoined by the remnants of the 6th Lancers who had followed in their wake. During their retreat the Cuirassiers and Lancers were charged by the 13th German Hussars, but, after a short fight, the few survivors of these two splendid regiments succeeded in finding shelter in the forest of Haguenau.

by large bodies of German infantry, and a deadly fire was poured in upon them. Rallying around their colonel, the remnants of the corps made a gallant, but fruitless, attempt to break through the cordon of fire that encircled them. Only two officers and fifteen men escaped. The rest were made prisoners of war.

The losses of the two regiments were immense. The 8th had 5 officers killed, 7 wounded, and 8 made

prisoners; the 9th had 3 officers killed, and 6 wounded. The 6th Lancers were almost annihilated. The sacrifices of the French cavalry in these charges were not wholly fruitless. They checked for a moment the advance of the Germans, and saved the right wing of the French army from almost certain destruction.

At 2 o'clock Elsasshausen was attacked in front by the 5th German Corps, and in flank by the 11th. This village was the key of the French position, and the greatest efforts were made to retain it. The defenders, however, exposed to the fire of seven batteries, were at length driven out by an overwhelming force. The French made several determined attempts to retake the village, but were in each case driven back with tremendous loss, and Bonnemain's division of Cuirassiers was eventually called up to cover their retreat.

The ground was, if possible, less fitted for cavalry operations than that over which General Michel had led his troops with such disastrous results a short time before. Ditches, bordered with trees of from 5 to 6 feet in height, impeded the movements of the horsemen; while the enemy's infantry found cover in the vine-yards and hop-yards surrounded by tall fences. The German infantry remained in regimental formation and received the charge of the Cuirassiers with file-firing of the most deadly character, supported vigorously by the artillery with shell and case.

The 1st Cuirassiers led the way, but their progress was soon arrested by natural obstacles, and by a searching rifle-fire. The 4th Cuirassiers followed, charging by squadrons. Two squadrons became entangled in the hop-yards, where they formed an easy mark for the enemy's riflemen. The remaining two, taking another direction, descended the valley towards Wörth, but their formation was broken by a number of impassable apple-orchards, from which a body of German infantry shot them down by scores. In this place alone three officers were killed and five wounded.

The first brigade of General de Bonnemain's division was thus almost annihilated before it came within striking distance of the enemy. The second brigade, consisting of the 2nd and 3rd Cuirassiers, was next called upon to attempt the impossible. The 2nd Cuirassiers charged first, by half regiments. Major Corot-Laquiante, who commanded the first and second squadrons, was accompanied for some distance by General Wolff, who pointed out the direction in which the charge should be made. Owing to the peculiar conformation of the ground, the enemy were for some time invisible to the Cuirassiers. After galloping at charging pace over 600 mètres of broken country, the two squadrons reached the summit of the plateau, from which they discovered a regiment of Algerian Tirailleurs hotly attacked by the enemy. The Germans, having captured Elsasshausen were now advancing on Fröschwiller and Reichshoffen. On perceiving the Cuirassiers, the German infantry hastened to throw themselves into the vine-yards and hop-yards, whence they might in perfect security throw in a destructive fire. The French infantry in the meantime seized the opportunity to beat a retreat. The 2nd squadron of Cuirassiers came unexpectedly upon a wide ditch, which their horses, exhausted by a long gallop over broken ground, were unable to cross, and in the confusion they were helplessly shot down by a detachment of German infantry concealed in a neighbouring hop-yard. The 1st squadron, which had charged a little further to the right, galloped blindly into a gap about 100 mètres wide, bordered on one side by an orchard of young trees and on the other by a hop-yard. Both sides were strongly occupied by the enemy's riflemen, whose fire, at a range of only 40 yards, was terribly effective. On debouching from the defile, the survivors found themselves at the edge of a plain swept by artillery. Lieutenant-Colonel Boré-Verrier, who had accompanied the two squadrons, finding them reduced to a fraction of their former strength, gave the order to retreat. The Cuirassiers, under the fire of the enemy's guns, crossed a large meadow on their right, and succeeded eventually in reforming under the batteries of the French divisional artillery placed on a hill to cover their movements. These batteries had, however, run short of ammunition, and were thus unable to support the Cuirassiers during their greatest need.

The second half regiment, under the command of Major Lacour, followed, after a few minutes, the lead of the first, and were equally unfortunate. They were exposed to the fire of a practically inaccessible enemy; and although a few horsemen succeeded in capturing a gun, they were obliged to relinquish their prize and beat a hasty retreat under a withering fire.

The 3rd Regiment of Cuirassiers was next sacrificed. Colonel de Lacarre, in giving the order to charge, had his head taken off by a shell. Two squadrons charged to avenge him, but met the same fate as their predecessors. Only two squadrons now remained of the division, and these received the order to retreat when they were about to share the fate of the other six.

The fate of Elsasshausen was now sealed. At 3.15 P.M. the battle was irrevocably lost, and the French army was in full retreat.

In all 700 Cuirassiers were killed, wounded, or made prisoners during the day. From the history of the Franco-German War compiled by the Prussian General Staff, we find that the following troops came into collision with the French Cuirassiers at Wörth.

XIth Corps d'Armée.

1st battalion of the 94th Regiment.
1st battalion of Fusiliers of the 88th Regiment.

1st battalion of the 83rd Regiment.
1st battalion of Fusiliers of the 82nd Regiments and mixed contingents from several other regiments.
3 guns of the 5th Heavy Battery of Field Artillery.
1 battery of Horse Artillery.
2nd and 6th batteries of Light Field Artillery.
1st and 2nd batteries of Heavy Field Artillery.
3rd battery of Horse Artillery.
5th battery of Light Field Artillery.

Vth Corps d'Armée.

5th and 6th companies of the 59th Regiment.
1st battalion of the 7th Regiment.
2nd battalion of the 58th Regiment.
1st battalion of the 50th Regiment and mixed contingents from the 6th, 46th, and 47th Regiments.

The Cavalry Division retired on Saverne, and eventually on Châlons, where the gaps were to a certain extent filled.

The 9th Regiment, which was reduced to a few men, was sent on to Paris, where it was completed and placed under the command of Colonel des Vouges.

By a decree of 12th August, Marshal Bazaine was appointed to the command of the Army of the Rhine, which consisted of the 2nd, 3rd, 4th, and 6th corps, the Imperial Guard and the 1st and 3rd Divisions of Reserve Cavalry. The 7th Regiment of Cuirassiers under Colonel Nitot, and the 10th under Colonel Juncker, formed the 2nd Brigade of the 3rd Cavalry Division. The brigade was commanded by General de Gramont-Lesparre, the division by General de Forton. The Cuirassiers of the Guard under Colonel Dupressoir formed, with a regiment of Carbineers, the 3rd Brigade of the Cavalry Division of the Guard commanded by General Desvaux.

When the first shots were fired on the morning of the 16th August, the 3rd Cavalry Division was in bivouac near Vionville, but although it was instantly formed up on the plateau of Rezonville, it was not called upon to take any important share in the action until half-past twelve. The Prussians had then driven back the corps of General Frossard, taken the villages of Vionville and Flavigny, and seriously menaced Rezonville, behind which the disordered French infantry was endeavouring to reform. A charge of Lancers failed to stem the torrent of the Prussian advance, and General du Preuil was ordered to lead forward his Cuirassiers to the attack. Their distance, however, from the German infantry was so great that the attempt was pre-doomed to failure. General du Preuil pointed out to General Frossard that the enemy's infantry should be broken by artillery before a cavalry charge became possible. "*Chargez de suite,*" replied the latter, "*ou nous sommes tous perdus.*"

The Cuirassiers were formed up in *échelon* of double squadrons; and General du Preuil ordered the leading squadrons to charge. The German infantry, somewhat surprised by the attack, ceased firing to form square;



CHARGE OF THE CUIRASSIERS AT MORSBRONN.

and the horsemen were thus enabled to cover a considerable distance without suffering serious loss. Their formation was, however, seriously broken by a baggage-wagon, and a number of biscuit tins and camp utensils abandoned by the French infantry in their retreat. The divergence necessary to avoid these obstacles caused so much disorder in the French ranks, that when they received the German fire at thirty paces, they lost all military formation. Major de Sahuqué, although mortally wounded, succeeded in penetrating into the Prussian square, whither he was followed by the adjutant, but both were killed on the spot. The rest of the two squadrons, driven back from this face of the square, were exposed to the fire of the other sides in their retreat. The next two squadrons were met at a range of 300 paces by a withering fire, which emptied many a saddle; but encouraged by a sudden cessation of firing in the German ranks, the survivors continued in good order. At a distance of 100 paces, however, they were checked by a terrific hail of bullets, by which half of the effective were instantly put out of action. The last squadrons, equally unsuccessful, were dispersed like their predecessors by the file-firing of the German square.



CUIRASSIERS OF THE 9TH REGT. (1870).

The regiment lost in these three charges 22 officers, 208 men, and 243 horses.

A short time afterwards, the Cuirassiers of the 7th and 10th regiments were able to avenge the slaughter of their comrades. At about two o'clock, when the action was at its height, the Germans, endeavouring to turn the French right, attacked the infantry and artillery of the 6th Corps with a regiment of Cuirassiers and a regiment of Uhlans. The German cavalry was divided into two unequal bodies; the smaller was charged by a regiment of French dragoons, while the larger threatened General Forton's brigade of Cuirassiers. The latter did not wait to be charged. Four squadrons of the 7th Regiment and one of the 10th attacked the German horse with fury, and dispersed them with immense loss. Only a small proportion returned within the German lines.

This was the first and last occasion on which the Cuirassiers took part in the fighting around Metz. In September many of their horses were sent to the



Charge of the Cuirassiers at Vionville-Mars-la-Tour.

abattoirs, and when Metz capitulated, at the end of October, more than half had been butchered. On 28th October the Cuirassiers of Metz became, like those of Sedan, prisoners of war.

On 30th August the 1st Bavarian and 4th Saxon Corps d'Armée surprised the 5th French Corps under General de Failly at Beaumont, and drove it in confusion towards the Meuse. General Béville's Brigade, consisting of the 5th and 6th Regiments of Cuirassiers, forming part of the 12th Corps d'Armée, was then ordered to recross the Meuse, which they had passed the day before, and assist in covering the retreat of the 5th Corps. On reaching the left bank of the river, the brigade formed up in two lines at 1,000 metres from the bank, behind a hillock occupied by a battery of mitrailleuse. At four o'clock in the afternoon the vanguard of the 4th Saxon Corps arrived within range of the battery, and the brigade of Cuirassiers were soon exposed to a murderous return fire from the enemy. For more than an hour they were kept on the move, with the object of baffling the enemy's gunners; but the German artillery soon found the range, and the French horsemen dropped rapidly under their withering fire. At length came the order for the 5th Cuirassiers to charge in support of the left flank, which was hotly engaged.

"Charge what?" inquired Colonel de Coutenson, when he received the order.

"There!" replied General de Salignac-Fénelon, pointing vaguely to the plain in front, bristling with bayonets, and swept by an overwhelming artillery. Even the pressing need of the moment could scarcely justify an attempt so hopeless of success, and so certain to involve the annihilation of the corps. Without another word Colonel de Coutenson led his regiment to the charge.

In the records of the 27th Magdeburg Regiment of the German Army we find an interesting account of the scene that followed:—

"This brave regiment (the 5th Cuirassiers) alone remained unshaken by our fire; it formed a wall of steel unmoved by the confusion with which it was surrounded. It had already sustained severe losses both in men and horses, when General de Fénelon, to arrest our progress, ordered the regiment to advance. Column of squadrons was immediately formed, and the whole regiment, with its officers at its head, advanced directly against the 11th and 12th Companies. These were drawn up in four ranks, with riflemen in the intervals. Colonel von Pressentin and Lieutenant Hildebronn were stationed in the midst of the riflemen near the 11th Company. The Colonel ordered the men to aim and fire slowly, reminding them that no cavalry need be feared by a steady body of infantry. The infantry and artillery fire of the enemy suddenly ceased, and a momentary lull ensued, during which nothing but the

clang of the advancing squadrons was heard. Captain Hartrott and Lieutenant von Westphal dressed their companies as if on parade. At 400 to 500 yards the best marksmen opened fire, and the Cuirassiers, suddenly changing the direction of their attack, advanced at the trot against the right of the 10th Company. This movement, however, exposed their flanks to the fire of the 11th and 12th Companies; but, despite the heaviest losses, the advance was still continued. The Cuirassiers were worthily emulating their ancestors of Waterloo."

"Captain Helmuth, who commanded the menaced company, remained calm and unmoved. The Cuirassiers were allowed to approach to within 150 paces before a shot was fired; but when Captain Helmuth gave the word, a withering fire emptied the saddles of the French horse. Nevertheless, the survivors continued their advance at the trot with the utmost calmness and precision. In front were the officers, behind them the most impetuous of their men; behind these, again, the calmer elements of the regiment, restraining with difficulty their maddened horses. At a distance of eighty paces the trot was exchanged for the gallop, and the front line arrived within thirty paces of our bayonets. At this range, however, the effect of our file-firing was annihilating. The mass of the Cuirassiers hesitated, but a large body, headed by their officer, still pressed on to within fifteen paces. They approached no nearer. Most of them fell under our fire; the remainder escaped by our left to the wood of Girodeau. One man only—a *maréchal des logis*—mounted on a magnificent horse, arrived within striking distance of our line. He rode directly against Captain Helmuth, who avoided a mortal stroke by a rapid side movement, and dealt his opponent a blow with the flat of his sword. A second onslaught, however, of the giant Frenchman, broke his sword, and he would inevitably have been killed had not a number of men sprung to his help. The Frenchman was wounded in the hip.

"Rendez vous, Monsieur; vous êtes un brave soldat, mais rendez vous!" cried Captain Helmuth to his disabled foe.

"Mais oui!" replied the latter, endeavouring to surrender his sword; but a German rifleman, thinking the movement to be a menace to his captain, shot him dead upon the spot. The horseman fell without a groan into the arms of the captain.

The Cuirassiers had, in the meantime, disappeared, followed by the fire of our rifles. With bravery unsurpassed, the regiment had ridden to inevitable annihilation."

On the 1st of September, the day had scarcely broken before shell began to fall into the French camp at Sedan. At 4 o'clock in the morning, the Bonnemains Division was formed up on the east of the plateau before Floing. To their right were posted the 8th Cuirassiers and the 10th Dragoons.

At 1 o'clock the Prussians attacked Floing, driving the French infantry before them across the plateau towards Sedan. Major d'Alincourt of the 1st Cuirassiers, then led one of the most gallant charges of the war. Collecting around him some 300 men, composed of Cuirassiers from the 1st and 3rd Regiments, a few Chasseurs d'Afrique, and even Turcos, who were mounted upon strayed horses, he made a determined effort to break through the wall of steel with which the French army was surrounded. All went well until the gallant little band arrived before Floing; but there they were met by a barricade of vehicles of all descriptions, and, while endeavouring to force a passage, were shot down in scores from the windows and roofs of the neighbouring houses. In some cases, when the Cuirassiers succeeded in forcing their way through the barricade, hand-to-hand sabre *v.* bayonet fights occurred. No quarter was given on either side. In one case a Bavarian, pursued by a Cuirassier, threw away his rifle and asked for quarter; but the latter killed him on the spot. In another case, a Cuirassier, thrown from his horse, and severely wounded, was killed by a bayonet thrust from a Bavarian, who, in his turn, was pierced through the back by a Frenchman.

The charge lasted a little over half an hour, during which time more than two-thirds of the French horsemen were put *hors de combat*. The remainder escaped to the French lines, where, on the 3rd September, the three regiments of Cuirassiers became prisoners of war.

When hostilities were suspended by the armistice of February 1871, the Parliament of Bordeaux, in reorganizing the French army, fixed the strength of the cavalry at seventy-five regiments, twelve of which were to be Cuirassiers. All regiments were to be 900 strong—six squadrons of 150 men and 120 horses each, excluding the staff. In 1873 each regiment gave up one of its squadrons towards the formation of some Dragoon and Chasseur corps; and the organization then introduced has been retained with but slight modification to the present time.

A few years ago, the advisability of abolishing the cuirass in the French army was seriously discussed, and even recommended by the highest French authorities on cavalry; but, probably through deference to popular feeling, no Minister has hitherto ventured to carry out the proposed change. The Cuirassiers have been, since Waterloo, the most popular corps in the French army. That they have deserved this esteem, the bare record of their achievements sufficiently shows.

ANCONA AND ITS CITIZENS IN 1859, DURING THE FRANCO-ITALIAN AND AUSTRIAN WAR.

By ADMIRAL H. F. WINNINGTON-INGRAM.

COUNT CAVOUR, Italy's eminent patriot and far-seeing statesman, adopted a wise policy when he persuaded His Sardinian Majesty, King Victor Emmanuel, and the Piedmont Chamber of Deputies to afford material aid to France and England in their endeavour to crush Russian aggressions in the Black Sea, by the destruction of that nation's great arsenal at Sebastopol during the year 1854–55. From the landing of General Della Marmora's Corps d'Armée of 18,000 men in the Crimea may be dated the resuscitation and the eventual unification of Italy, as also the advancement to its present high place among European nations.

These beneficial results did not follow immediately on the close of the Russian campaign, nevertheless they continued to fructify as time progressed. What ideas were exchanged and what arrangements proposed by the Governments of France and Italy between the years 1856 and 1859 are but imperfectly known to the world at large, but, there is every reason to believe, no misconception existed as to the "pound of flesh" required from the latter country for French aid in expelling the Austrian from Lombardy, Venice, and other portions of the Peninsula where he had gained a footing. In fact, Cavour and the "silent man of the Tuileries" were in perfect accord on this subject, and doubtless, had the French Emperor carried out his share of the programme and freed Venice, few murmurs would have been heard when Nice and Savoy were ceded to France. It suited Louis Napoleon's purposes well—after a little time had elapsed—to again engage in a strife that would prove profitable to the French nation. These people had not been over well pleased at the enormous expenditure of blood and treasure in the Russian war, without receiving any adequate return when peace was made.

Ugly comparisons were being drawn between the tactics of the first Napoleon—who always made a successful war to pay at the expense of the defeated—and the shuffle out of the Crimea, upon terms as little injurious to the Czar's Empire as possible, by the great man's nephew, their then Emperor.

The French troops had, indeed, covered themselves with glory when in 1855 they stormed and carried the Malakoff, and it shone all the brighter for an English repulse at the Redan on the same day, owing to the assault not being properly supported; and here I cannot refrain from relating an interesting anecdote connected with this failure. It was related to me by a quondam neighbour in retirement, who, now a Colonel, was then a gallant subaltern of the famous 90th, and shared the perils and defeat of that bloody fight with his comrades of the 97th and other regiments. It seems they were successful in entering the work by the aid of Sir William Peel, scaling ladders planted by blue jackets serving ashore. These fine fellows rushed from the advanced trenches to the rampart ditch under a heavy cannonade from the Russian guns. The storming party then mounted the breach and found, at first, little opposition from the enemy, so they pushed on, but were soon met by advancing Russians, who poured a murderous fire of musketry upon them, and this struck down our brave soldiers like nine-pins.

Here Colonel Hancock and Major Welsford of the 97th, with many other officers and men, met their fate. My friend, as yet, remained unscathed, so he went forward to try and stay the foe, supposing himself well backed up by his following. However, when on nearing the enemy he looked round for support, he found it only in the person of an Irish corporal belonging to his own company, who, in tones of remonstrance, exclaimed: "Begorra! is it loikely sor that *you and oi* can take the Redan?"

There was little time for further expostulation, as the Russians came on at the double, and after shooting the subaltern through the body, literally pitchforked him, as it were, into the ditch, from which, above the dead and dying, he crawled up to the glacis, and there had his ankle-bone smashed with another bullet, but managed to attract attention from the allied trenches and was brought in.

This officer afterwards served as a Captain in the same distinguished regiment, in India, during the mutiny of 1857. He was present at the first relief of the Residency at Lucknow, and afterwards fought under Sir Colin Campbell at the final capture of that city, when the dashing General Neil, as also the writer's brother, Colonel Ingram, of the 97th Regiment, who at this time commanded a brigade in General Franks's column, and many another officer and man, nobly fell at duty's call.

My gallant friend, modest as he is brave, remains so

this day without pension for wounds, though he still suffers from their effects, and is undecorated save by foreign orders and the medals he so hardly earned.

After the fatal battles of Novara and Custozza, in 1848, King Charles Albert and his Piedmontese appear to have despaired of attaining success against the Austrians, who continued complete masters of the situation until 1859. On the first day of that year certain words were dropped from the lips of the French Emperor, at his reception of the Austrian Ambassador, that startled all Europe from its dream of peace, and were, in fact, the harbingers of immediate war between France and Italy on one side, and Austria as their opponent.

Louis Napoleon in his manifesto, announced the intention of freeing Italy from the Alps to the Adriatic; yet when the peace of Villa Franca was made—after the bloody battle of Solferino—Venice still remained under the harsh military government of Austria, while beautiful Naples and her sister city, the lovely Palermo, groaned beneath the tyranny of the Bourbon King of the Two Sicilies. Rome, also with Perugia and Ancona, continued morbid in consequence of the unprogressive and hated Papal rule.

However, the following year, 1860, a deliverer was to appear in the person of Giuseppe Garibaldi, who landed with his famous 800 volunteers at Marsala, under the eyes of the author, who hopes to make that chief's then, and subsequent successes, the subject of another article.

It was in the month of April 1859 that H.M.S. *Argus* reached Malta, having made a considerable stay at Gibraltar *en route* from England.

In May of the above year, the *Argus* was ordered by Admiral Sir Arthur Fanshawe, K.C.B., then Commander-in-Chief in the Mediterranean, to proceed to Ancona under secret orders, and with instructions to forward all written communications to him and the Hon. Peter Scarlett—our Minister-Plenipotentiary at Florence—in cypher.

As England had proclaimed her neutrality in the war then raging in Lombardy, it was necessary to be cautious during our intercourse with the Italians at Ancona, so as not to give offence to the Austrian Army Corps stationed there. Doubtless the sympathy of every true Englishman, at the time, was with the struggling nationality, and the officers and crew of the *Argus* were not exceptional in this matter. I therefore, as their commander, thought it expedient, before they were exposed to trying influences, to impress them with the probable mischief that might be effected if they allowed their feelings to go uncontrolled.



ANCONA.

On the 21st of the month, the *Argus* arrived at Ancona, and was moored, head and stern, inside the Mole. I was at once called upon by the Vice-Consul for England, a Mr. G——. He came, not only on his official visit, but to advise me of a rule of the port, that vessels inside the Mole and carrying heavy guns,

were not to salute the Papal flag as they would do if at the outer anchorage. The reason assigned for this rule was the damage that would inevitably accrue to the citizen's windows by the concussions.

I was surprised to find the Vice-Consul a young, handsome, and full-blooded Roman instead of a countryman of mine own. His parents lived at the Papal capital, and moved in the best circles there. The mystery that seemed to surround his appointment as representative of British majesty and administrator of English law, was cleared up on my being told the history of his previous life by a mutual friend.

"A few years back Rome had been visited by an English family of high social rank, and stated to have been related to our then great Minister of the day, Lord P——. One of the party, a young lady of a certain age, had been attracted by the good looks of the youth G——, and regarded him with favour. Papa G—— was not slow in seeing the advantages to be obtained for his son if a marriage between him and the lady could be brought about; and, without consulting the young man's own feelings in the matter, made the necessary proposal. It was accepted, and the wedding shortly took place, only to prove the old adage that a horse may be brought to the water, but that he cannot be made to drink against his will! In fact, the love and the money were all with the lady, and the youth, without reciprocating the former, made as free as he could with the latter. Affairs did not remain long in this state, as the wife, becoming disenchanted on a closer intimacy with the Italian, her friends offered him terms of separation, one being the British Vice-Consulship at Ancona."

Such was the story told to me, but I cannot vouch for its being true.

I found G—— a clever and agreeable official. His companionship was also pleasant, although our social ideas, from the difference in our national education, did not always correspond. He accompanied me, the day after the arrival of the *Argus*, when I went to pay my respects to the Pope's legate who represented His Holiness in Ancona, then part of the Papal States.

May the 24th being our gracious Queen's birthday, I had sent a lieutenant the previous afternoon, as is customary, to inform the foreign men-of-war of my intention to dress the *Argus* with flags in honour of the occasion, and received a reply from the captain of the Austrian war-steamer, at anchor near me, that he should be happy to do likewise. It was, therefore, with some surprise I found myself awakened at early morning by a message from that officer regretting his inability to pay the usual honours to the day, as he had intended, in consequence of receiving instructions from his superior, the General in command of the Austrian troops, not to do so, as I had neglected calling upon him to report the arrival of the *Argus*.

I gave the messenger to understand—but, of course, not in exactly the following words—that there could not possibly be two kings of Brentford; and as I found the Papal flag flying over all the forts and citadel of Ancona, I had paid my official visit to the Pope's representative, with a reserved intention of passing the same compliment, in a less formal manner, to the Austrian General; but, owing to his present uncourteous act, I should not now carry out my original idea, but report the circumstances to my naval and diplomatic chieftains at Malta and Florence.

As it so happened, the delegado, or legate, returned my visit on the 24th, and was received on board with manned yards and a guard of honour of our marine detachment. This must have been gall and wormwood to the General, whom I observed that evening scowling at me from a box in the opera-house exactly opposite to one I had taken for myself and officers, and where we appeared in full uniform, and accompanied by Vice-Consul G——, to show the deep respect we ourselves felt for Her Majesty's natal day.

The Austrian troops were busily engaged in throwing up defensive works on all the heights around the city, in expectation of an attack from a division of the French army that had been placed under the command of Prince Napoleon (otherwise known as Plon-plon), and who was directing its march for the Adriatic seaboard to turn the left of the enemy's positions, whilst his cousin, the Emperor, with his Italian allies, attacked them in front, and worried their right rear with Garibaldi's Cacciatori delle Alpi.

The Prince, however, had no intention of laying siege to Ancona, when he could neutralize the 10,000 soldiers there by passing by the place, and cutting off their retreat. By this strategy he would prevent them joining their comrades in the north, and this, no doubt, he would have successfully accomplished, had not the victory of Magenta opened the gates of Milan to the combined forces, and caused the Austrians to fall back on the line of the Mincio, where they concentrated their army for the final struggle, and called in all outlying garrisons.

The care of British interests in Ancona was not a very onerous duty, and my instructions hardly mentioned them, as they were, in reality, confined to the persons and property of three or four English residents. The principal of these was a Government timber merchant, whose daughter had married Count Fasioli, and thus became Contessa Fasioli (*nata* Coomber) and Mayoress of the City. Both she and her husband were strong partizans of Victor Emmanuel, and tried their utmost to force my neutrality, when time brought a revolution at Ancona in his favour.

I took the earliest opportunity of visiting the shrine of the black virgin or Madonna of Loreto, and became acquainted with the marvellous story attached to it; and this was given me in printed form, headed by a rough woodcut of the holy mother and child seated on the roof of the stable of Bethlehem, and being borne, *in nubibus*, from Syria to Italy by some miraculous agency.

It is related in the body of the paper—on the authority of one, Richard Coddington, an English priest—that the stable made its descent near Perugia, where it rested for some little time, but that, the people there being found wicked and unbelievers, the stable, with its outside passengers, again took flight, but shortly landed itself at Loreto, where a magnificent church was built over it.

The fame of the Madonna soon extended over all Italy and adjacent Catholic countries, and has ever since remained a grovelling superstition to the priest-ridden people, who, for centuries, have approached the sacred edifice on hands and knees, and then crawled over its flagged flooring to the shrine itself, until the stones have actually been worn down by the passage of the myriad devotees who have paid their adoration in this manner.

A strong feeling of irritation crept over me when I read that a countryman of mine own—even in the dark ages—had promulgated so gross an imposture.

In my journal of June 2nd, I find myself receiving a visit on board from two lady politicians in the persons of Contesse Fasioli and Jeauvenelli. The latter being a most attractive revolutionist, I had to hug my neutrality pretty close, for fear of her filching it from me. I was, at this time, in correspondence with the Hon. Peter C. Scarlett at Florence, who—with the prophetic eye of a diplomatist—foresaw coming events at Ancona, and placed me on my guard with its inhabitants.

An episode now occurred which produced further complication in the unique dual government of the place.

On the morning of the 3rd, a French screw frigate appeared off the port, and a Papal boat went out to board her; in the meanwhile, the Austrians manned all their batteries to oppose her entrance, and when the boat returned with a message from the French captain to the Delegado, requesting permission to come into the harbour, it placed the latter in a very awkward position.

Ancona was to all intents and purposes a neutral port, the Pope being on terms of friendship with both France and Austria. The first country was supporting him on her bayonets at Rome, and the second keeping down revolution in the provinces. But France was now the ally of the Papal enemy, Victor Emmanuel, and this turned the balance of His Holiness's goodwill in favour of Austria, and he was not disposed, during the progress of the war, to do anything that might be offensive to her, so, when reference was made to him in respect to the admission of the French frigate into Ancona Harbour, he pronounced the neutrality of the port, and the right of the Frenchman to enter it, but at the same time warned him that he had no control over the actions of the Austrian general, who had stoutly declared he would open fire from all his batteries if the vessel attempted to force her way in. The frigate in the meantime had gone on to Rimini, but in a few days appeared again off Ancona.

The Austrians immediately manned their works, and I received a message from the General, requesting the *Argus* might be moved to the outer anchorage. After the above officer's incivility on the 24th of May, I was not disposed to oblige him in this manner, and returned for an answer, that as my ship was in Papal, and not



BAY OF NAPLES.

Austrian, waters, I should do nothing of the kind, and if she was injured by the fire of the Frenchman, in returning that of the batteries, I should hold the General responsible for commencing an attack which was clearly opposed to international law. Luckily, for all parties concerned in this controversy, the commander of the French ship, possibly considering discretion to be the better part of valour, did not attempt to force an entrance, and thus the matter ended.

On June 6th we heard of a battle having been fought in which the Austrians were defeated with great loss, and that the city of Milan had been occupied by the French and Sardinian armies.

On the 11th, news arrived at our Consulate, that the Austrian troops had orders to evacuate Ancona that night, and we could see them marching in from the heights around the town, which they had been busily fortifying up to the last moment. There was evidently urgency in the orders that reached these working parties, for their tools were thrown on the ground at once, and seemingly no further care taken of them.

At daylight the following morning, the Austrian army was seen in full march on the road to Rimini, after a ten years' occupation of Ancona, whose inhabitants now hardly realised their freedom from the foreigner, and to what best purposes it might be put. This hesitation proved fatal when, a few days later—on June 18th—a great demonstration in favour of Victor Emmanuel was made in the city. This was headed by the Mayor (Fasioli), and accompanied by a display of tri-coloured flags.

Some Papal troops had in the meanwhile been sent to Ancona, and had taken possession of the citadel, which completely commands the town. Its guns were now pointed on the processions of citizens, and orders sent down for the assemblages to disperse. This measure gave strong umbrage to the people, who had made sure of the military siding with them, and bloodshed was momentarily expected.

Count Fasioli managed, however, to throw oil on the troubled waters by promising to establish a provisional government, and to call out the civic guard. The Delegate was persuaded to retire to Rome, and a junta of four notables took the reins of government from his hands. The Pope's General, with all the remaining soldiers and gendarmerie, retreated to the citadel, keeping the Papal flag flying over its walls, while the tricolour of Sardinia was to be seen hoisted in every part of the town. The revolutionists held out large inducements to the troops to desert, and many took these bribes, and joined the rebel ranks; but the majority held firm to the cross-keys of St. Peter.

I had received many pressing invitations from the Contessa Fasioli to come on shore and view their demonstrations, for the purpose, doubtless, of showing the people that England sympathised with the movement; but I was not to be caught in this fashion, and declined all the advances of the popular party.

I had offered our Vice-Consul to take up his residence on board the *Argus* during this crisis, that he might also be safe from female influences, and watch, without risking his neutrality, the turn of events. He accepted my invitation, and was much abused by his shore friends for doing so.

June 20th.—More deserters came down from the citadel; otherwise there was a falling off in the enthusiasm of the revolutionists, as rumours were in the air of a Papal army marching in the direction of Perugia, to suppress the rising there, and that it would afterwards advance upon Ancona. As this news circulated, a perfect panic prevailed in the city, and the General in the citadel took advantage of it to try and gain an entrance; but the citizens closed the gates of the town, and cut off all communication both with him and his troops.

I visited my British residents in the afternoon of this day, and gave them a bit of my mind about the conduct of the revolution, and the share they had individually taken in it by attending the demonstrations of Mr. Coomber's son-in-law, and warned them that they could not expect my protection if, by dabbling in such proceedings, they brought themselves into trouble with the Pope's Government.

The next day all the foreign Consuls went in a body to the Papal General, and requested to be informed if it was his intention to attack the town. He replied in the negative, but was evidently awaiting reinforcements. In the meantime the Junta had despatched deputies to Victor Emmanuel, to ascertain if they could rely on receiving material assistance from him.

On the 23rd a grand religious procession took place in the town, and to this I was invited by Madame Fasioli; but, making sure it was only another trap wherein to injure my neutrality, I declined. However, I learnt afterwards that the affair was got up more to appease the clerical party, and pave the way for the recall of the Delegate.

The following day the Papal forces re-occupied the city, and the Junta and custom-house troops fled to Ravenna. No arrests were made, but martial law was proclaimed. At the same time came the intelligence of a large force of Swiss soldiers, in Papal pay, being within a day's march of Ancona, after ruthlessly suppressing the revolution in Perugia—a stern measure that afterwards became known as "the massacre of Perugia." Great was the consternation amongst the Anconatanis, whose leaders now sought refuge in flight; and the Mayor (Fasioli), on the assumption that by marrying an Englishwoman he had a claim to British protection, applied to be taken on board the *Argus*, or, rather,

sounded my opinion on the matter through a lady friend, a Miss W——. I replied that it was not my intention to receive any political refugees from Ancona on board the *Argus*, as the coast was quite clear for them to proceed elsewhere and land themselves on friendly territory. I also gave as my private opinion the necessity there was for the least compromised of the citizens to make their submission at once to General Kalbermatten, commanding the Swiss forces, so that Ancona might be spared the horrors that overtook the people of Perugia.

I also expressed my contempt for the weak conduct of the revolutionists in not at once seizing the citadel and other strong positions on the departure of the Austrians, instead of making foolish parades with tri-coloured flags and shouting for Victor Emmanuel, who could not then send to their aid, but might have done so had they protracted the defence of the place by holding out the citadel to the last. I also observed that the leaders of such a badly-managed revolt could not expect much sympathy in their exile.

However, the above was not to be taken as an official exposition of my views about the revolution, as it would not be right for me to give it, but these few lines were to be considered as simply the contents of a private letter.

On June 26th news arrived of a great battle having been fought on the Mincio, ending, after immense slaughter on either side, in the retreat of the Austrians upon the "Quadrilateral" or the four strongholds of Lombardy and Venetia. This French and Sardinian victory was named the battle of Solferino.

An Ionian British subject had laid a complaint before the Vice-Consul of being insulted by the Papal patrol, and the case was referred to me. On calling on the Pope's General for an explanation, I soon found the tables turned upon the Greek, who was proved to have first insulted the patrol.



PALERMO.

On the 28th, being Her Majesty's coronation day, the ship was dressed in flags and I paid my official visit to the new Military Governor, General de Kalbermatten, whom I found to be a fine straightforward old soldier, and, like nearly all Swiss, an admirer of everything English, even to the language, which he spoke fairly well.

He had just proclaimed Ancona in a state of siege and had ordered a number of arrests to be made. Among these, of course, was that of the Mayor, who had been

the spirit of the revolution, such as it was. Rumours had reached the General that Fasioli had taken refuge on board the *Argus*, and on the occasion of my dining with him the next day, he surprised me by rapping out in a half-jocular tone, before all his staff: "It is said, Commandant, that you have that rebel, the Mayor, on board your ship." To this I answered that it was doubtless where Count Fasioli wished to be, but where he was not; at which he gave me a knowing wink, as much as to say, "I don't credit that story, but I shall not say anything more about him."

On July 1st, H.M.S. *Lapwing*, Commander O'Reilly, arrived with the unexpected intelligence of Admiral Fanshawe's squadron being off the port, and the next day all Ancona witnessed the rare sight of five of the finest ships in Her Majesty's navy taking up their anchorage in the outer roads. The vessels were the *Marlborough* (flagship), of 120 guns, the *Renown*, 91 guns, *Princess Royal*, 91 guns, *Victor Emmanuel*, 91 guns, and *Euryalus* (frigate), 51 guns, all screw steamships.

I was received very cordially by the Admiral, who said he had brought the squadron to back me up in my troubles, but as I informed him they were, for the present, at an end, he sailed again on July 4th, leaving me still in charge of *our interests* at Ancona.

On July 6th I received an official visit from the Swiss General, who did not again allude to the refugee, but gave me news of Piedmont troops occupying Bologna, which, being Papal territory, he naturally considered a very serious step.

The following day I received an invitation from a Mr. Kane to his country place for the purpose of witnessing a contadina, or peasant dance in celebration of the close of the harvest. It was one of the prettiest sights imaginable. The ball-room was the floor where the grain had been trodden out by oxen. This being swept and garnished, with the clear blue sky for its ceiling, and the brilliantly dressed women and picturesquely clad men for its occupants, all in rapid movement as they in turn advanced towards each other with coquettish airs and then retired abashed, both sexes keeping time to the music in every attitude they displayed—was something to have seen and to be remembered.

On July 8th came the first rumour of an armistice being arranged between the hostile armies of France and Austria, and the next day the news was confirmed, and caused much discontent amongst the majority of Anconatanis, who had made up their minds that the French Emperor would not quit Italian soil until it was freed from the Alps to the Adriatic of both Austrian and Papal dominion.

Louis Napoleon, however, did wisely for his own interests in resting on the laurels he had gained, and in not risking a reverse by attacking the strongholds of Venetia, more especially as his army and that of his ally had been considerably weakened in the two well-contested fights of Magenta and Solferino.

He not only, by these victories, silenced the voices of his political enemies, but they consolidated his power in the minds of the multitude, and when he handed over to the French people the fruits of the campaign in the ceded provinces of Savoy and Nice, there were no bounds to his popularity. On July 12th the Pope's delegate resumed the government of Ancona, and the Swiss General took his departure. In the evening the *élite* of Ancona were assembled, by invitation, to a ball on board the *Argus*, which was kept up with great spirit until early dawn.

Many Italian beauties were there, but the belle of the party was a Señorina Yackamini, whose blandishments acted so powerfully upon our young assistant surgeon, that he approached her with the full intention of proposing matrimony; but, alas! his small knowledge of the Italian language proved unequal to the task, and caused



Our Vice-Consul at Ancona.

such a mal-appropriation of words, that they made the Señorina first blush up to her eyes, and then run off in convulsions of laughter. The swain, it appeared, had intended to address his charmer as "Mia Adorosa" (my adored one), but his memory becoming defective at the moment, he commenced his love-speech with "Mia Odorosa" (my odoriferous one), with the result as above.

A few days after this social gathering, I accompanied G——, the Vice Consul, on a visit to his landed property in the neighbourhood, for the purpose of viewing the primitive manner in which he collected his rents.

The small farms he owned were some twelve miles distant, and the road to them lay through a richly-cultivated country. The grain had already been gathered in, but the trellised vines still hung heavy with luscious grapes, and the yet unpulled herbs and root leaves, that grew in patches over the landscape, had a verdant brilliancy rarely seen elsewhere but in this land of sunshine and shower.

G——'s estate-agent had preceded us on the road,

and now waited at the gateway of the first farm to be visited, in order, with the courteous manners of his nation, to assist the party in alighting from their carriage, and to introduce the holder of the property, who stood, hat in hand, the very personification of humility, in the presence of his landlord. G—— gave his tenant a hearty greeting, which was responded to by a somewhat doleful capitulation of the many evils that had befallen the agriculturist during the growing season, how thunderstorms had laid his grain crop, and locusts had eaten his herbs, and worms his roots, to all of which G—— listened patiently, and then adjourned to the farm-house, where account-books would be inspected, and afterwards the cereals laid out in heaps. One half of these were apportioned to the landlord, and the other to the tenant; the former was taken charge of by the agent on the part of his master who, being of a liberal turn of mind, desired that a certain quantity of the grain should be given back to the tenant, on account of the hard times he had experienced. The man accepted the present with all the effusion of his race, placing G——'s hand to his lips, and pouring out his thanks with a flow of eloquence natural to Italians, be they of high or low degree.

The farm stock was then visited, and a valuation made of all the cattle, sheep, pigs, and poultry of which it consisted, so that the landlord's proportion might be calculated. No disagreements arose during this trying process, which speaks volumes for the fair-dealing of both parties, who seemed in the height of good humour with each other. Before departing, a frugal refection of bread, cheese, and country wine was offered us by the Contadini or peasant holders of farms, as they came by turns under their landlord's inspection.

This was considered the proper thing to accept, however replete individuals of the party might have become by previous partakings.

On July the 23rd, H.M.S. *Vigilant* arrived at Ancona from Venice. Her commander, Armytage, had viewed the battle-field of Solferino, and gave a vivid description of the horrors of the scene.

July 31st, H.M.S. *Argus* took her departure from Ancona for Corfu and Messina, amidst the good wishes of many Anconatani friends.

H. F. Winnington-Ingram.

NAVAL AND MILITARY NOTES AND QUERIES.

Chivalry in the Fourteenth Century.—Chivalry, according to certain historians, was, during this century, in process of decline, but the decline, if any, was rather in the nature of its forms and ceremonies, than of its spirit or essence. It was the century of the most illustrious names in chivalry, in France of Bertrand du Guesclin, in England of the Black Prince, Sir Walter Manney, Sir John Chandos. It was the century of the battles of Crecy, Poitiers, Avray, and Navarette. It was the century of the Order of the Star in France, of the Garter and Bath in England. Above all, it was the century of Froissart, who painted its manners and thoughts with a vividness so surpassing that to read his pages is almost to live in his time. So that the fourteenth century may fairly be taken as the period in which chivalry reached its highest perfection, and in which the military type of life and character attained its noblest development. It is the century of which we instinctively think, says Farrer, when we would imagine a time when the rivalry of brave deeds gave birth to heroism, and the rivalry of military generosity invested the cruelties of the battle-field with the halo of romance.

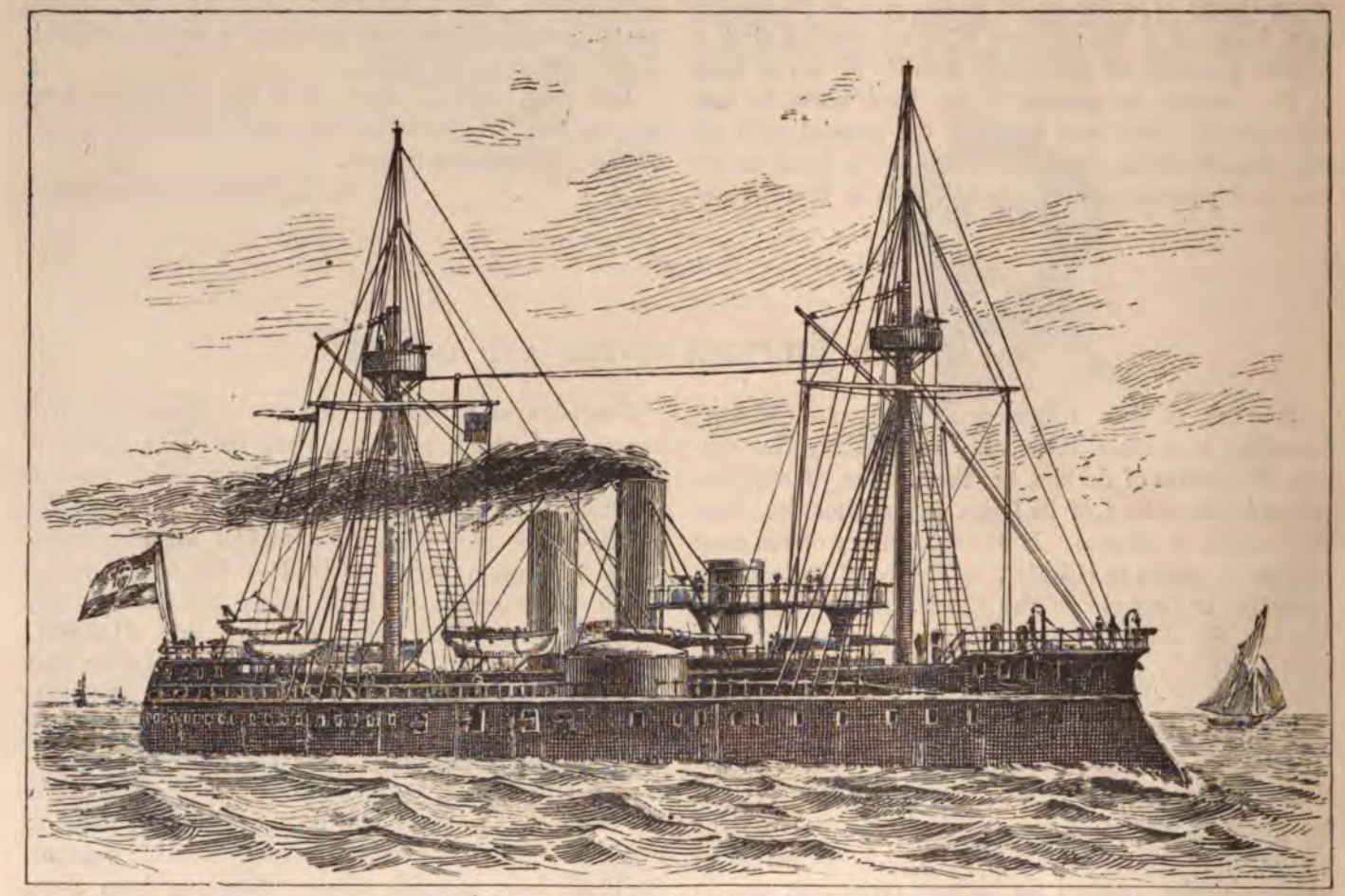
Fortunes made by Privateering in England.—War represented to large classes what the gold mines of Peru represented to Spain, the best of all possible pecuniary speculations. In the year 1747 alone the English ships took 644 prizes, and of what enormous value they often were! Here is a list of the values which the cargoes of these prizes not unfrequently reached: That of the *Heron*, a French ship, £140,000; that of the *Conception*, a French ship, £200,000; that of *La Charmante*, a French East Indiaman, £200,000; that of the *Vestal*, a Spanish ship, £140,000; that of the *Hecta*, a Spanish ship, £300,000; that of the *Concordia*, a Spanish ship, £600,000. Two Spanish register ships are recorded to have brought in £350 to every foremast man who took part in their capture. In 1745 three Spanish vessels returning from Peru, having been captured by three privateersmen, the owners of the latter received as their separate share the sum of £700,000 and every common seaman £850. Another Spanish galleon was taken by a British man-of-war with a million sterling in bullion on board.

R. O'Byrne.

THE NEW AUSTRIAN ARMOURCLADS.

By KARL VON AUSLAND.

THE tendency among small naval Powers to build their own ships-of-war is daily becoming more marked. A recent decision of the Spanish Government provided that all armourclads should be built in the Peninsula, and that preference should be given to native contractors. Germany builds all, Italy most of her war-ships; Russia is extending her dockyards; and the two new armourclads launched, within a few months of one another, for the Austrian navy, were built at Pola and Trieste. The launch of the *Kronprinzessin Erzherzogin Stephanie* and the *Kronprinz Erzherzog Rudolf* comes just in time to save the Austrian navy from almost total extinction. Even now, Austria can rank only as a fourth-rate naval power. With the exception of the two new armourclads, she has launched no line-of-battle ship since 1878.



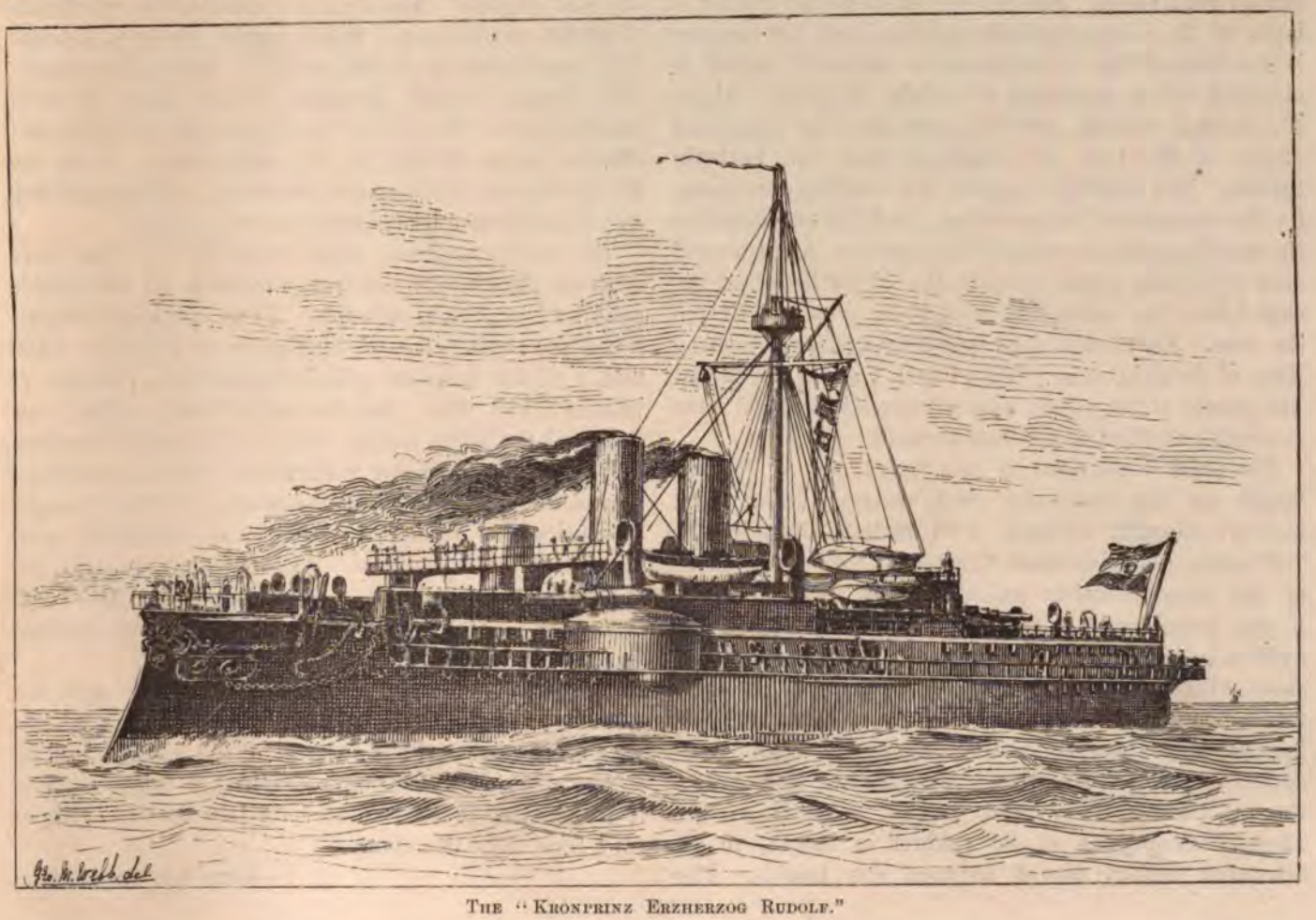
THE "KRONPRINZESSIN ERZHERZOGIN STEPHANIE."

The *Kronprinzessin Erzherzogin Stephanie*, launched in April last from the yards of the *Stabilimento tecnico triestino* at San Rocco, near Trieste, was built to replace the old armoured frigate *Ferdinand Max*, which has now become obsolete. The principal dimensions of the new vessel are as follow:—Length on the water-line 85·36 m., beam 17 m., draught forward 6·09 m., draught aft 7·09 m., mean draft 6·59 m. The displacement is 5,152 tons. The hull is built entirely of the best steel of native manufacture, and is divided into a large number of compartments by watertight bulkheads. An armoured belt 2·30 mm. thick and 2·82 m. high runs around the ship, reaching to a depth of 1·37 m. below the water-line. The turret is protected by compound plates of a similar thickness. The total weight of armour is nearly 900 tons.

The main offensive power of the ship is centred in two 30·5 cm. Krupp guns of 35 calibres in length,

mounted on Armstrong's hydraulic carriages. The length of these guns is 35 calibres; the weight of the tube 48·5 tons. With a charge of 141 kg. of brown prismatic powder they give an initial velocity of 530 metres per second to a projectile weighing 455 kg. Their maximum range is 16 km.; at an elevation of 15° it is 9 km. These guns are mounted one on each side of the oval turret. The ship carries, in addition, six 15-cm. Krupp guns in an armoured battery aft of the turret. The tube of these guns weighs 6·8 tons; the length of bore is 35 calibres. With a charge of 28½ kg. of brown prismatic powder they give an initial velocity of 600 metres per second to a projectile weighing 51 kg. The artillery armament is completed by two 7-cm. light guns, and eleven quick-firing Hotchkiss guns. The latter are placed partly along the sides of the ship, and partly on the military masts. Great attention has also been paid to the torpedo arrangements; and tubes for launching have been placed in all parts of the ship. The interior and exterior of the vessel are lighted by Gramme and Edison dynamo engines. The former work two arc lights of 20,000 candle-power, which can be united if required to a single light equivalent to 40,000 candles. Another Gramme machine, which is transportable, furnishes a light of 3,000 candle-power. The interior of the vessel is illuminated by 150 incandescent lamps of from 8 to 16 candle-power each. Finally, an elaborate system of night-signalling has been provided on the Sellner principle.

Nearly a third of the whole interior of the vessel is taken up by the engines. The twin-screws are driven by three-cylinder vertical compound engines, built by Messrs. Maudslay, Sons & Field. Their principal dimensions are:—Diameter of the high-pressure cylinder, 1,400 mm.; of the two low-pressure cylinders, 1,850 mm.; stroke of pistons, 1,000 mm. The two surface condensers have a total condensing area of 1,500 square metres. The total heating surface of the boilers amounts to 1,600, the grate area to 620 square metres. The guaranteed power of the engines at ordinary draught is 6,500 h.p. With forced draught nearly 11,000 h.p. may be obtained, giving an estimated speed of 16 nautical miles per hour. The number of auxiliary engines for all purposes is considerable; and they embrace the latest inventions both in naval engineering and in the science of war. There are independent engines for the steering apparatus, for manœuvring the anchor, for draining the cells, and for working the heavy guns.



THE "KRONPRINZ ERZHERZOG RUDOLF."

The *Kronprinzessin Erzherzogin Stephanie* is in all respects a typical, if somewhat small, specimen of the modern war-ship.

The *Kronprinz Erzherzog Rudolf* was launched on 6th July last from the Imperial Arsenal at Pola, in the presence of the Emperor of Austria The hull is constructed, like that of the *Kronprinzessin Erzherzogin Stephanie*, of native steel of the best quality, and is divided into a large number of watertight compartments by longitudinal and transverse bulkheads. This sub-division of the hull, together with the network of pipes for draining the compartments, renders the vessel almost unsinkable. The *Kronprinz Erzherzog Rudolf* is built on the central redoubt system, and her armour is so arranged that a maximum of defensive power is obtained with a minimum of weight in metal. Above the central redoubt, which is protected by compound plates of 305 mm. in thickness, rise two barbette turrets. The hydraulic engines for working the guns, for the transport of ammunition, and for manœuvring the steering gear, are protected by armour. An armoured deck of 67-mm. plates extends the whole length of the ship below the water-line, and gives great solidity to the ram. Above this deck, and along the unarmoured sides of the ship, runs a belt of cork 1 m. in thickness. The pumps of the vessel have a capacity of 2,000 tons —nearly one-third of the displacement—per hour.

The chief dimensions of the vessel are as follow: length on the water-line 94·4 metres ; beam 19·2 metres ; draught forward, 6·78 metres ; draught aft, 7·92 metres ; displacement 6,867 tons. The armament of the vessel consists pnincipally of three 30·5-cm. Krupp breechloading guns, mounted on Armstrong hydraulic carriages. Their ballistic qualities are the same as those of the *Kronprinzessin Erzherzogin Stephanie* mentioned above. The forward barbette turret, extending the whole breadth of the ship provides accommodation for two of these guns. The third is mounted in the aft turret. The vessel carries, in addition, six 12-cm. Krupp guns of 35 calibres in length, in an armoured battery placed between the turrets. The weight of tube in these guns is 3·5 tons, that of the projectile 26 kg., and of the charge of powder 15 kg. The bursting charge is 1·4 kg., the initial velocity 610 m., the maximum range 12 km. There are, in addition, two 7-cm. Uchatius steel-bronze breech-loading guns, and 11 quick-firing guns placed along the sides of the ship, and on the military masts. The vessel is moreover provided with a large number of torpedo-launching tubes placed in various positions.

The exterior and interior illumination of the *Kronprinz Erzherzog Rudolf* is effected by means of four Gramme and Edison machines driven by three independent engines. The dynamos furnish two arc lights of 20,000 candle-power, which may be united in a single light equivalent to 40,000 candles. Another transportable dynamo engine furnishes an arc light of 3,000 candle-power. The interior is illuminated by 150 incandescent lamps of eight to ten candles each. As in the *Kronprinzessin Erzherzogin Stephanie*, night-signalling will be performed by Sellner's electric system.

The motive engines, which work twin screws, were built by the *Stabilimento tecnico triestino* on the double cylinder compound principle. Their principal dimensions are : diameter of high-pressure cylinder 1,450 mm. ; of low pressure cylinder 2,540 mm. ; stroke of pistons 1,150 mm. The two cylindrical surface condensers have a condensing area of 1,160 square metres, and the necessary water is furnished by two centrifugal pumps driven by independent engines. Forced draught is obtained by means of eight large ventilators provided with special motors. With ordinary draught the engines indicate 6,500 h.p., with forced draught, 7,500 h.p., giving, in the latter case, a speed of sixteen nautical miles per hour.

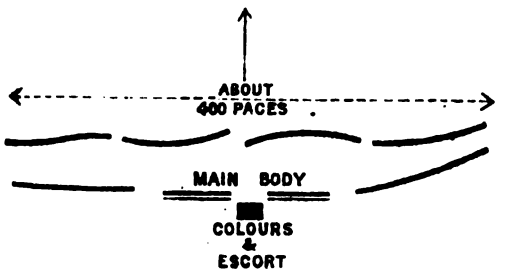
The launch of these two vessels, together with the speeches made, and toasts drunk on the occasion, has once more awakened the interest of the Austrian public in the welfare of their navy. Whether this solicitude is permanent, or, as is more probably the case, temporary, time alone can show.

KARL VON AUSLAND.



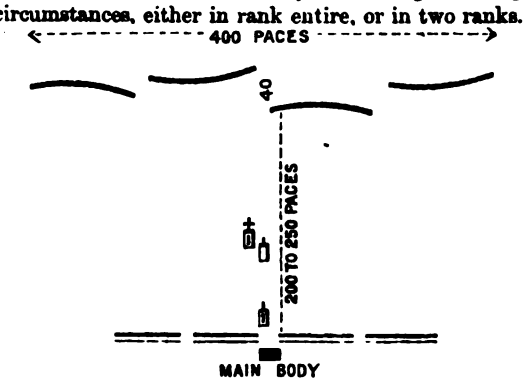
A Battalion Attacking

(About 150 paces from enemy's position.)



4th Stage.

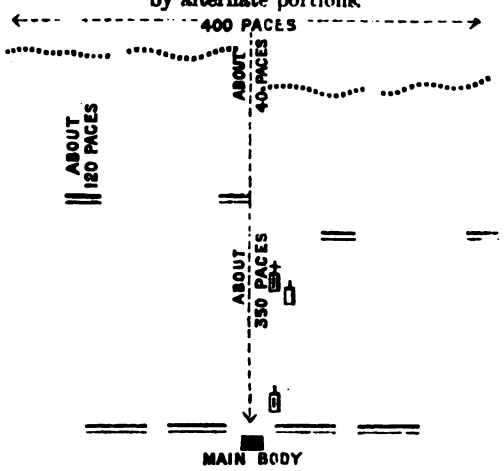
Fighting line checked. Main body reinforcing according to circumstances, either in rank entire, or in two ranks.



3rd Stage.

(From 300 to 400 paces from enemy's position.)

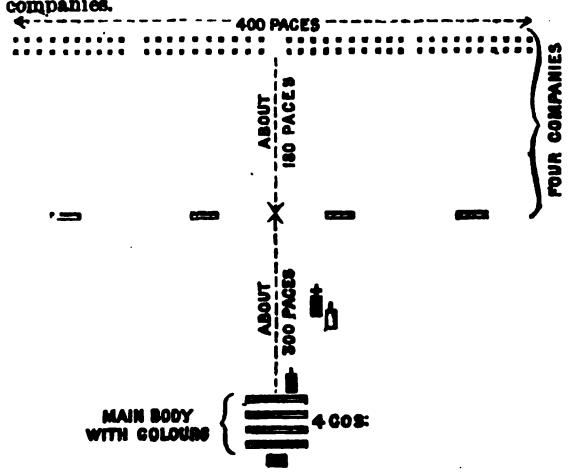
Fighting line, reinforced by supports, firing and advancing by alternate portions.



2nd Stage.

(500 to 600 paces from enemy's position.)

Fighting line firing in rank entire, advancing by alternate rushes, supports in two ranks moving as convenient. Main body deployed with intervals between companies.

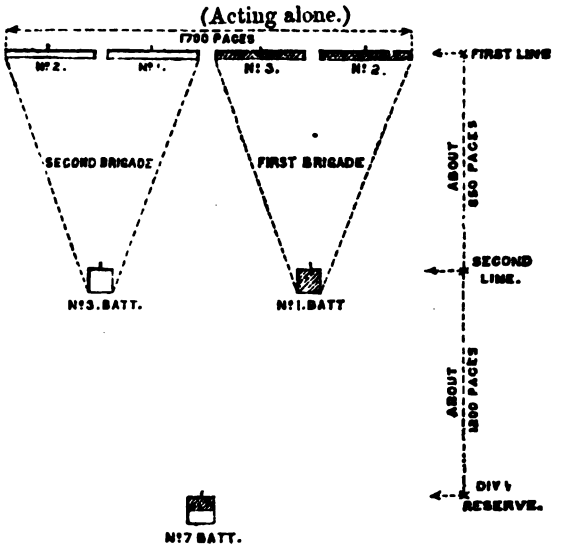


1st Stage.

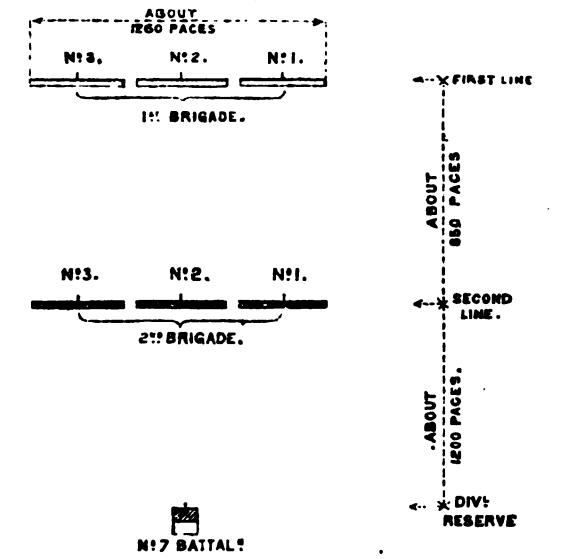
about 1000 yards from enemy's position.

A DIVISION.

(Acting alone.)



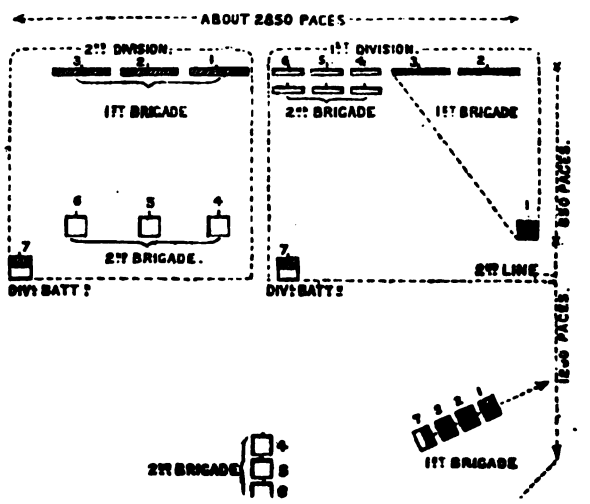
Each Infantry Brigade formed with Two Battalions in the 1st line, and a third in the 2nd line, the 7th Battalion as Divisional Reserve



1st line formed of one Brigade.
2nd line formed of the other Brigade.
7th Battalion as Divisional Reserve.

AN ARMY CORPS.

Showing the different formations for Battalions, Brigades, and Divisions.



INFANTRY DRILL BOOK FORMATIONS.

MODERN TACTICS.

By CAPTAIN H. R. GALL, Late 5th Fusiliers

CHAPTER XII.—Infantry Tactics.

SUCCESSFUL as the German tactics proved themselves to be against the French in 1870, the experience gained in a more recent European campaign has shown that their adoption ought to be regarded as abnormal under circumstances when a commander, confident in the moral superiority of his troops, and calculating on the mistakes of his opponents, may discard a well-established maxim.

The wide and deep turning movements adopted by the Germans were only rendered possible by the bad generalship evinced by their opponents; and had the positions of the combatants been reversed at Spicheren, at Wörth, and in front of Metz, the simple defensive checkmate to their own offensive tactics, studied in the German lecture-halls, would probably have turned the tables, and any wide and deep turning movements of the French, supposing them to have been so venturesome as to have adopted them, would have been attended with the fatal results usually entailed by a violation of one of the first principles of tactics.

In support of this conjecture, the student of military history will recall to mind the defeat of Frederick the Great's remarkable and astonishingly successful system of offensive tactics, the first time it was adopted by his opponents against himself at the battle of Rossbach, and its total collapse when opposed to Napoleon some years afterwards at Austerlitz.

As turning movements in the battle-field are most frequently executed by infantry, this preamble may not be considered out of place under the heading of the present chapter.

To pass for a moment from tactics to strategy, the next war between France and Germany will wear a different aspect. The popular notion that France is to be turned through Belgium is just what the French, by their forethought, and evident distrust of Germany, have provided against. Confident in the strength of her network of fortresses, France, if threatened from the north-east, is prepared, in the event of their violating neutral territory, to meet the invaders on a narrow front. France having taken the precaution to avoid as far as possible erecting fortresses round big cities with large populations, the next war between these two nations will probably be characterized by a succession of protracted sieges.

Infantry Defensive Tactics

may be summed up in a few words—"Cling to the ground and dig." During the last fifteen years the defence behind hastily-constructed redoubts and earth-works has gained enormously upon the attack. In a few hours a position which cannot be outflanked, owing to the increased power of modern fire-arms, can be rendered almost impregnable against an attacking force, even though it be greatly superior in numbers. All cover for the enemy should be destroyed in front of intrenchments, and troops should never be posted where they cannot be supported.

One man per yard of intrenchment should always be kept in the firing line, with supports (one section per company) also intrenched if no natural cover exists close in rear, to feed the firing line, and half of each battalion in local reserve to be ready to join in the hand-to-hand struggle if matters get so far that the assailants actually reach, and have to be expelled from, the trenches. The defence of woods, villages, defiles, bridges, &c., are all treated under their respective headings, but the principle in each case is the same, viz. to try and prevent the assailants reaching their goal, by overwhelming them with a steady, well-directed and constant fire, and to keep sufficient troops in hand to expel them the instant the first survivors of the attack reach it, and before they can be reinforced. The fire of the defence is effective for 2,000 yards; within 1,000 it is very destructive, and within 500 it is deadly. In order to develop this fire to its utmost, half the available troops of the first line ought to furnish the firing line and its supports, and the remainder be kept safe behind convenient natural or artificial cover, near enough to be introduced, well in hand, fresh and vigorously into the *mêlee* which may have to decide the final issue of the struggle. The two things most essential to a trained infantry soldier are—(1st) to be a marksman; (2nd) to be an expert in the use of his spade.

There is no reason why every soldier should not shoot at known and unknown distances as well as the Boers. If in these days of repeating breech-loading rifles, a soldier is not an expert with his weapon, he is worse than useless, for he expends so much more ammunition than formerly, all of which has to be carried for him. In every small army there might be twice the number of marksmen if men were only encouraged more. Extra pay, pension, privileges of every sort and kind, might all be made more dependent on a soldier being a good shot. It is impossible to have experts in any trade or profession without practice, and infantry are not exercised in hastily constructing field-works, and defending them, nearly enough. Twenty cool shots behind a trench are equal to 100, if not 200, excited men, hurriedly stopping to loose off their rifles outside it. To be an all-round steady shot, a man must be

sober and temperate in his habits, and the good shots of a company are seldom the worthless characters.

Infantry Offensive Tactics.

Infantry should be able to march and wheel in line, and in column, form fours and squares if necessary, and skirmish without losing direction, over almost any sort of country; besides these tactical manœuvres, it is generally acknowledged that some fixed method of attack formation is required, although none has yet been established which inexperienced troops thoroughly believe in.

Attack Formations.

The writer had hoped to have furnished a comparison of formation of units, and modes of attack, as at present practised by the Austrian, French, German, Italian, Russian, and English armies; but after considerable research, and taking into consideration that important changes are now taking place, not only in our own army (where the composition of a brigade has been recently fixed by a high authority as being four, not three, battalions), but on the Continent, and especially in Germany, he has decided to wait a little longer. With the *Field Exercise* to refer to, it is needless to describe the English mode of attack, though it might be interesting to compare it in all its details with those of other countries. In Germany, as in England, a new method of attack is now being experimented on.

Fresh regulations for infantry attack have been issued to the French army this year. They are complicated, and hardly seem likely to be effective.* The English attack formation resembles very closely that adopted by the Prussians during the latter half of the Franco-German war. The experience of a more recent campaign, where the combatants were more equally matched, has led to many modifications of it, and the Germans have recognized the impossibility of delaying, for any consideration, the forward movement of battalions when once they have been committed to the attack on a position. To reach a spot near enough to develop the utmost amount of fire action is very desirable in theory, but in practice it has been found utterly hopeless to halt within short or even medium range of resolutely defended intrenchments.

General Skobeleff, a commander of great ability and courage, who never failed to carry any intrenchments he attacked, and the most experienced authority on this subject, decided that the final assault on an intrenched position in a shoulder-to-shoulder formation owing to the increased accuracy of the fire of the defence was no longer feasible in 1877. It has been recorded as his opinion, that the only formation in which troops can be expected to carry resolutely defended earthworks is in successive lines of skirmishers, pressed on one after the other at all hazards, and this is the principle of the present German system of attack. Lieutenant Greene thus describes the two direct front assaults made by Skobeleff's troops at Plevna, September 11th, 1877, and in rear of Shipka, January 8th, 1878:—

"The troops were formed under shelter, between 2,000 and 3,000 yards from the Turkish lines, in battalion masses (double column of half companies on the centre). In the beginning of the action, the rifle company of each battalion was sent forward as a thin line of skirmishers, and one platoon (quarter company) in column of half platoon behind the line, at a distance of not more than 50 paces, and constantly replacing its losses. About 200 paces behind the skirmishers came the first battalion, which moved forward in line, not touching elbows, but with intervals of about two paces (or less) between the men—a strong skirmish line, in fact—each company having three-fourths of its strength in line, and one-fourth just behind it, in platoon column, to replace its losses. The men moved forward, preserving a general alignment, but each man taking advantage of any shelter that lay in his path, and firing from behind it, and then moving forward again. Another battalion followed in precisely the same order, at a distance of about 300 paces, so that the men could feel that there were supports coming behind them.

"The remaining battalion of the regiment was held in hand by the division commander until the fight developed itself, and it could be seen where the most resistance was met, whether the enemy was bringing any troops on the flanks, &c.; the battalion was then directed on the point where it was most needed.

"The regiments on either side were sent forward in the same manner.

"Meanwhile the reserve regiment of the division (a Russian regiment is three or four battalions, according to whether it is a line or a rifle regiment), always under the control of the division commander, was kept under shelter as near as possilbe to the line; as the troops already engaged, which had now merged into two lines (and at points where the resistance was greatest into one), began to move slowly, to halt, to waver, the reserve regiment, or a portion of it, was sent forward rapidly to the point where the fighting was hottest."

Whatever the actual formations may be, the object of all attacks must be to get up to, and capture, a position held by an enemy, presumably intrenched, and belching forth fire from the comparative safety of their earthworks. When it is remembered that the accurately aimed infantry fire of the defence extends under favourable circumstances to 1700 yards, and that the

* For a full description of the new French method of attack, the reader is referred to a book entitled *L'École Bataillon en Tableaux Synoptiques*, by L. Samoin, Paris 1887, and to a good description of it, with illustrative plates, which appeared in the *Broad Arrow* of February 19th, 1887.

The Regiment in Oblique Echelon of Troops to the Right (or Regimental Half-column of Troops from the Right.)

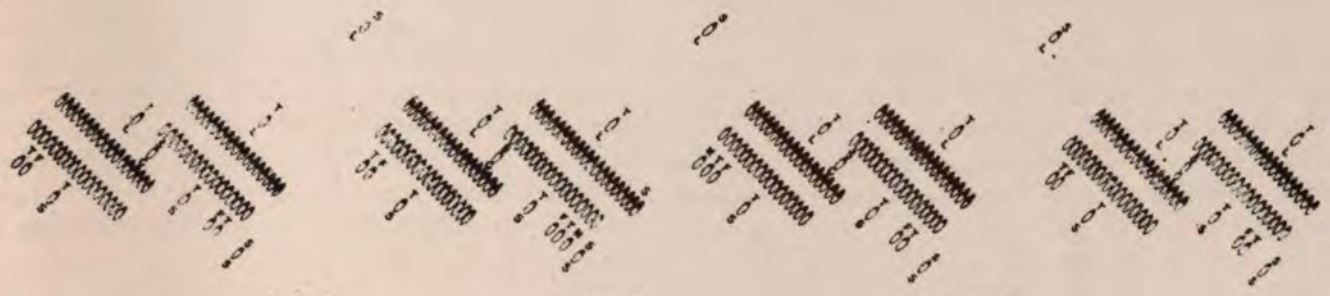


Fig 1.
Squadron of 36 files in fours advancing from the Right

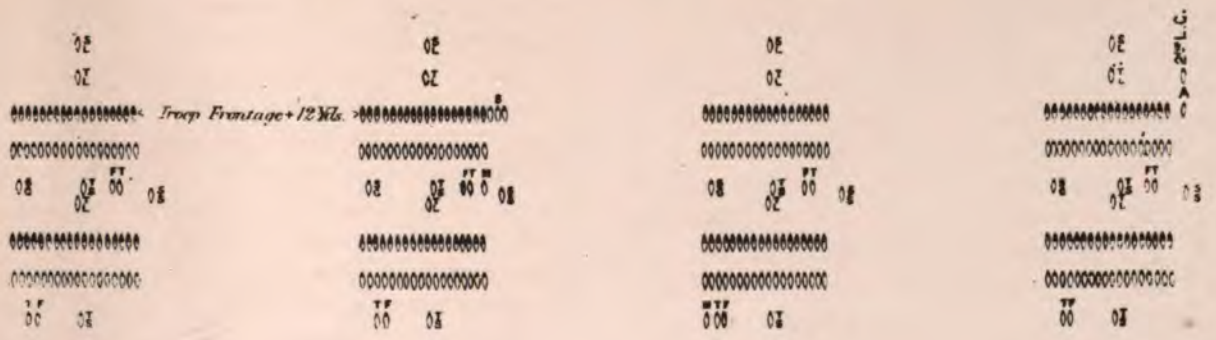
Fig 2
Squadron of 36 files in Column of Sections advancing from the Right

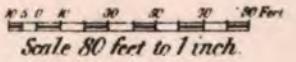
Fig 3.
Squadron of 36 files with Standard rankingt past by Sections from the Right.



Note. *The Scale of Figs. 1, 2 and 3, is 60. 80 and 120 feet to 1 inch respectively*

The Regiment in Line of Squadron Columns.





Scale 80 feet to 1 inch.

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unaimed fire has been known to inflict severe losses up to 3,000 yards, the absolute necessity for the assailants to get over this fire-swept zone as quickly and with as little loss as possible, is so openly apparent that every other consideration palls before it.

The fire of the actual assailants never becomes "really" effective at all, not even within the traditional 300 yards of an intrenchment, an impossible distance for any troops advancing over the open to be expected to halt, and direct their fire with marksman-like precision at the heads of the defenders crouched low behind their earthworks. The time will be better spent in getting over the ground anyhow than in halting to fire at an inadequate target.

Artillery firing shrapnel with well-timed fuses may aid a frontal attack greatly up to within almost rushing distance of a position, and long-range oblique fire from troops posted behind the flanks of the assailants may be utilized to the utmost to distract the defenders' attention during the earlier stages of the advance, but the bayonet will, in future, as of yore, decide the issue of a stubbornly-contested fight.

As these pages are written chiefly for the use of students reading for examinations, and as any formations not recognized in the *Field Exercise* may tend rather to distract than to aid them in this object, the writer has not attempted to do more than point out the principles of attack formations, exemplified by the latest experience of actual civilized warfare. For stages of field exercise attack, *vide* Plate I.

CHAPTER XIII.—The Principles which Regulate the Tactical Use of Cavalry.

The employment of large bodies of cavalry on the field of battle is clearly a thing of the past. The Prussians sacrificed a division of cavalry at the battle of Gravelotte, and gained their object. Had success happened not to have attended its sacrifice, it would have been difficult to justify it. Great honour is therefore due to those brave squadrons.

Cavalry, if it fights infantry, and cannot surprise it, or fall upon it retreating and short of ammunition, or when greatly disorganized, must be prepared to fight on foot. This is surely what Napoleon meant in 1811, when he wrote to the French Minister of War—"The cavalry regiments of the 'ancien régime' carried small arms which they used, not as carbines, but as muskets. I desire you, therefore, to form a council of Cavalry Officers to come to some decision in this matter. I cannot accustom myself to see 3,000 *élite* cavalry (Cuirassiers) at the mercy, in the event of a surprise, of a few light troops, or liable to be checked on the march by a handful of bad shots posted behind trees or houses."

Modern fire-arms have caused a less frequent use of cavalry in the actual shock of battle; still its presence on the field will always have the effect of obliging hostile infantry to keep closer than they otherwise would, and thereby give opportunities for its own artillery and infantry to fire at a better target.

The *rôle* of enterprising cavalry hovering about the immediate vicinity of a battle-field is most important. Acting against lines of communications and supply, cutting telegraphs, destroying railroads, bridges, etc., watching from a flank the movements and dispositions of an enemy, reporting the effect produced by their own artillery-fire, and looking out generally to make a sudden and opportune swoop.

For reconnoitring purposes, in pursuit, and during a retreat, cavalry is still absolutely essential.

The action of cavalry is purely offensive. The blunder made by the Russians at Balaklava will never be repeated. When called upon to charge, no matter what the objective may be, cavalry, guns, or infantry, the charging squadrons should go at their opponents hammer and tongs, so regulating their pace as to deliver their onslaught at the highest rate of speed compatible with the cohesion which can only be obtained by absolute uniformity of time and pace. This cohesion need not in any way interfere with the independence of squadrons, which is necessary to enable cavalry to be rallied, as well as to manœuvre over rough ground against their opponents' flanks while protecting their own.

"La force de la cavalerie est dans son impulsion; mais ce nést pas seulement la vélocité qui assure son succés; c'est l'ordre, l'ensemble, et le bon emploi de ses réserves." These are Napoleon's own words, to which Jomini adds: "If an army be deficient in cavalry it rarely obtains a signal success, and experiences great difficulties in its retreat."

Cavalry combined with horse artillery, if skilfully manœuvred, will still play an important part in action. When acting against cavalry the batteries should be massed, and their fire concentrated as much as possible so as not to impede the movements of their own squadrons. The fire of the guns should first be directed on those of the enemy; but as soon as his cavalry appears on his first line, until marked by their own cavalry, then their fire should be directed against the second and third lines of the enemy. Horse artillery must gallop forward and gain a position on a flank before a charge is delivered. Cavalry seldom venture to attack well-placed and well-served guns.

For raiding purposes a combined force of cavalry and horse artillery is admirably adapted. Cavalry and horse artillery can render good service on the battle-field by hovering round the enemy and giving opportunities for their own infantry to creep up and develop its fire.

No precise formation can ever be laid down for cavalry

to attack in; so much depends upon the ground and on the character of the enemy and his dispositions.

The ground over which a charge is imminent should be reconnoitred, and for this purpose cavalry should always, when moving over unknown ground, be preceded by ground scouts, and its front and flanks secured by reconnoitring groups.

The best general formation for cavalry to charge in is line, followed on the flanks by a second line (called supports), consisting of squadrons echeloned at least 200 yards behind each other. The supporting squadrons, whether in line or in echelon, should lie from 50 to 100 yards from the outside flank of the first line. No charge should ever be delivered without a reserve, varying in strength from one half to two-thirds of the force employed, placed about 400 yards from the charging squadrons and echeloned on them, usually on the protected flank.

Every charge of cavalry versus cavalry consists of a series of operations directed against each other's flanks, and resolves itself into a mélee in which both sides become mixed up.

When at its height the skilful introduction into the combat of a fresh body of formed squadrons on one side or the other, will quickly decide the issue; hence the absolute necessity for a reserve, (1) to meet fresh attacks, (2) to confirm and follow up success, (3) in the event of a sudden overthrow to protect the retreat of beaten squadrons, or possibly, to achieve success after their failure, a feat often rendered possible by the disorganization of the victors, if their reserves are not up. The reserve in cavalry charges, as in infantry attacks, must be handled so as to be up just before the fighting squadrons or line begin to waver. If it only arrives when the first line is already in retreat it is too late, the attack has failed through being made with only a portion instead of the whole available force at the disposal of the commander, and a new attack has to be made over the same ground scattered over with the dead and wounded of the previous failure. This has a demoralizing effect and shows bad direction in its worst form.

Rules for the Employment of Cavalry on the Field of Battle.

I. Never await an attack, either advance to meet it or retire.

II. Never attack infantry, unless demoralized, surprised, run out of ammunition, or when a necessary sacrifice has to be made.

III. Never charge without supports and a reserve.

IV. In order to take advantage of cover and ground, manœuvre in column out of rifle-range of the enemy.

V. Attack cavalry escorts of artillery simultaneously with the guns. Charge the former in line and the latter in open order, and endeavour to attack both in flank, if possible in rear.

VI. Increase the pace gradually from a brisk trot till full gallop is attained about 50 yards from the enemy, and so regulate it as not to sacrifice cohesion and the mutual support of squadrons acting in concert.

VII. Remember that just after even a successful charge, squadrons issuing from a mélee are very liable to be worsted by a body of fresh troops in compact order launched against them.

VIII. If cavalry is called upon to charge infantry, the best formation is successive lines of squadrons with intervals of not less than twelve yards between the squadrons. The distance between the lines must be regulated by the commanders, who should endeavour to charge "home" the moment they see an opening, after the first line has fallen back through the intervals if it has been repulsed. If the first line has broken through, the second line should charge at once obliquely before the enemy has closed up again. In open ground against infantry the gallop must commence sooner than against cavalry, to avoid the volleys taking effect.

IX. Always remember that the flanks of cavalry are particularly vulnerable; therefore seek those of the enemy, and protect your own. This is best done by having squadrons in support on the exposed flank or flanks.

X. There are five conditions essential to a well-executed charge.

1. Open ground free from obstacles.
2. Opportunity.
3. Speed.
4. Cohesion.
5. A reserve ready to be thrown into the fight just before its own squadrons begin to waver, or just after the enemy begin to look over their shoulders.

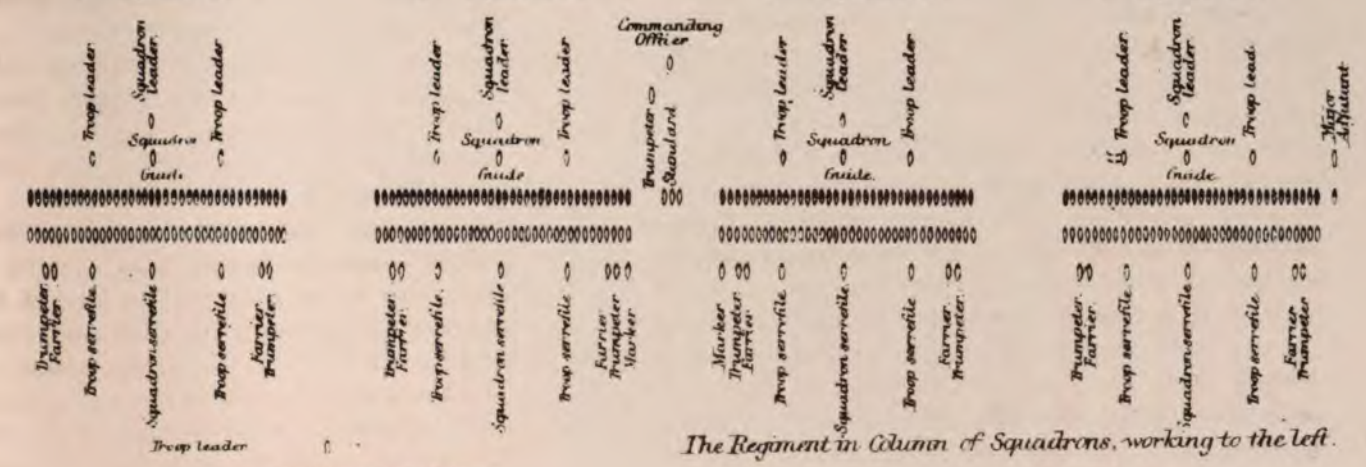
XI. In large bodies no manœuvres should take place within 500 yards of the enemy.

XII. The commander of the reserve should not put his whole force "at one time" into the mélee, unless absolutely certain that the enemy has charged with his last reserves.

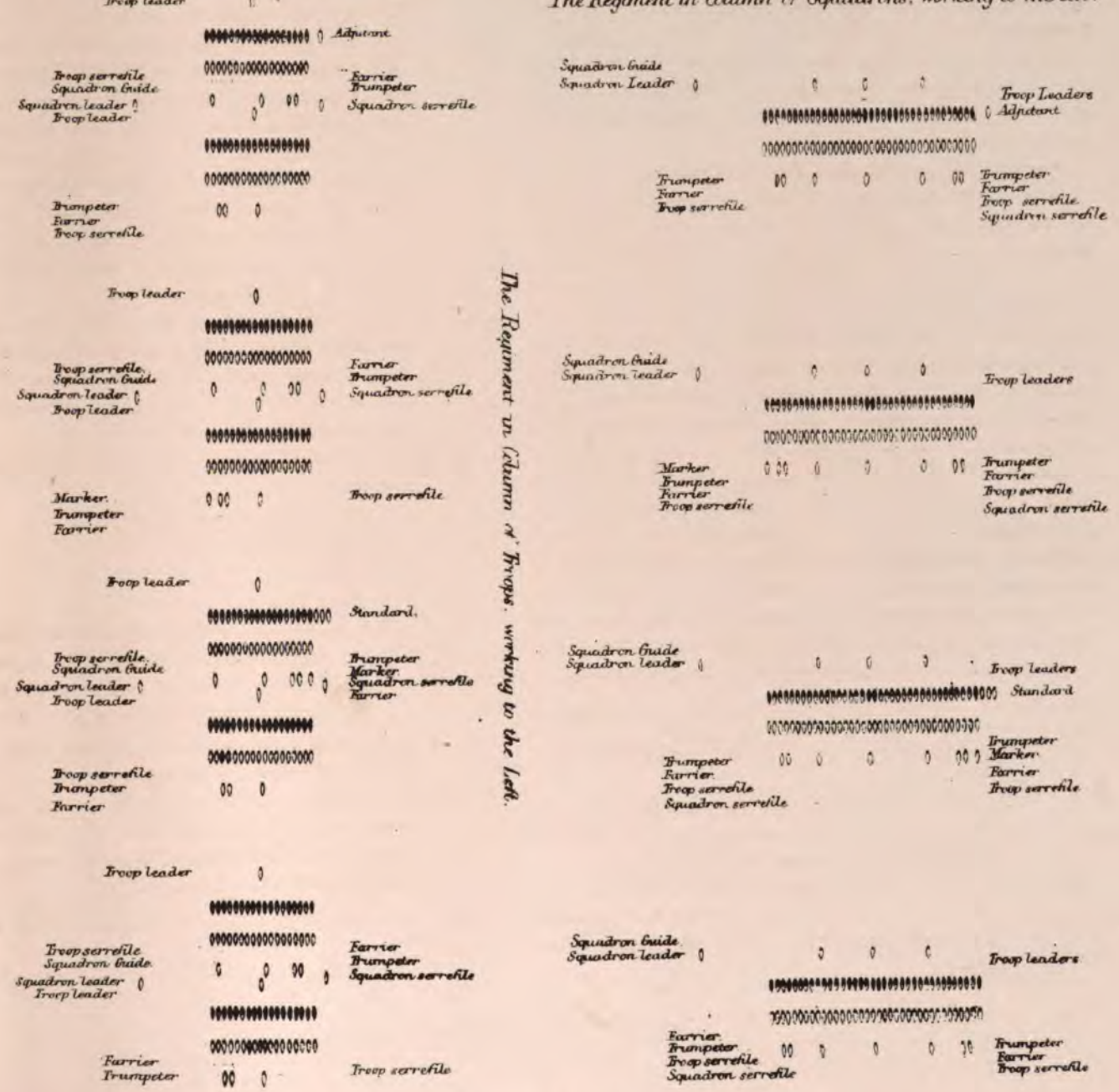
Latest Cavalry Drill Book Formation (*Vide* Pates II. and III.)

H. R. G.

Regiment in Line at Close Order.



The Regiment in Column of Squadrons, working to the left.



The Regiment in Column of Troops, working to the left.

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THE RIFLE REGIMENTS.

By AN OFFICER OF THE STAFF.

Part I.

THE object of the following article is to place before those interested in the matter a plain statement of the claims of the King's Royal Rifles, and of the Rifle Brigade, to be considered the senior or oldest corps of British riflemen.

It may be suggested by some that it is unnecessary to enter into such a discussion, on the grounds that the matter is beyond dispute. It is, however, a fact that considerable doubt does exist on the question amongst many people, with the result that it is common to hear the most decided opinions expressed, both on one side and on the other. Now, as long as statements regarding the seniority of either regiment as riflemen were made in a casual and irresponsible manner, it was obviously not worth while to take any serious notice of them; when, however, such statements were reproduced in books, some of which, at any rate, may almost be viewed as records of the regiments, it was time that such a matter should be thoroughly investigated, and the rights of the case definitely ascertained.

We allude especially to the late General Rigaud's excellent little book, *Celer et Audax*, or history of the 5th Battalion of the 60th, published in 1879, and which may be fairly taken as setting forth in the most explicit manner the particular circumstances upon which those who believe in the seniority of the King's Royal Rifles, as a rifle corps, base their opinions. General Rigaud, in describing the raising of this 5th Battalion, states, "The Battalion thus formed was the original of those battalions now so well known and so distinguished, in every sense of the word, as 'riflemen.' . . . In this particular they claim priority, in time, to all other battalions in the British Army." The facts of the formation of this battalion are undisputed; it is equally indisputable that it was formed some two years before the "Corps of Riflemen" (as the Rifle Brigade was first called) was raised. It remains, therefore, to be proved whether the raising of this 5th Battalion of the 60th as riflemen does, or does not, justify the claim of the King's Royal Rifles to be considered as the senior or original *British* Rifle Corps.

Before proceeding further with our investigations, we take this opportunity of earnestly disclaiming any intention of saying aught to wound the susceptibilities of anybody. Our task is simply to make a careful historical research, and we trust that, in doing so, anything we may find necessary to chronicle in order to establish a doubtful point at issue, may be viewed by both sides as a mere matter of ancient history. Of one thing we feel confident, and that is, that it would be altogether beyond the powers of anyone to cause an estrangement between two corps, which, whatever may be their individual claims to be considered the original rifle corps in the British service, are undoubtedly *the* two original rifle regiments who have for many a day stood together, and held their own against all and every attempt to be "levelled down" by successive War Ministers *et hoc genus omne*, who apparently spend their existence in devising puerile methods to crush the ancient pride of the "greenjackets," by depriving them of their well-earned distinctions, and cramming a hard and unsightly "*Pickelhaube*" on their gallant heads.

The early histories of the two corps are so essentially different, that it will hardly surprise our readers to find that the greater portion of our researches are taken up with tracing the eventful and chequered career of the 60th, commencing as it does in the middle of the eighteenth century, and involving many important and widely divergent points, which are woven in, so to speak, with the general history of England during some seventy years. On the other hand, beyond the record of its first formation, the career of the Rifle Brigade does not necessitate the introduction of any historical researches, and as it was raised in the usual manner, and in comparatively recent times, the main facts of its origin and formation are easily recorded, and, in fact, have never been called into question.

Taking as our starting point, as we have already said, this fact of the raising of the 5th Battalion of the 60th, two years before the formation of the Rifle Brigade, it is evident that if the two regiments can produce equal claims to be looked upon as British regiments in the common acceptation of the term, the 60th will have gone a long way towards establishing its claim to seniority.

Here then lies the essence of the whole question, for the advocates of the seniority of the Rifle Brigade insist that it was the first, original, and consequently senior corps of British riflemen, and that this 5th Battalion of the 60th, which General Rigaud avers to

be the first in the service, can in no sense be admitted to be included in the category of British riflemen. The reason given for this somewhat sweeping statement is that the 5th Battalion were all foreigners and aliens, and that in those days the 60th had a special organization apart from the rest of the British army, which made it virtually a Colonial Corps, and that in consequence the 5th Battalion of the 60th was a battalion of foreigners, armed with rifles, and especially raised for service in the Colonies, and as such could not be considered as "British riflemen."



OFFICER. THE RIFLE CORPS, 1800.
Dark Green Jacket and Pantaloons, Crimson Sash, Silver Buttons on Jacket. The First Dress of the Rifle Brigade.

Having thus enunciated the claims of both regiments, we will now proceed to examine the proofs which have been produced on either side in substantiation of the same.

Since the facts connected with the origin of the Rifle Brigade are not contradicted, we will first briefly relate the circumstances which led to its formation.

Some time in the year 1799, Colonels Coote Manningham, and the Hon. Walter Stewart addressed a paper to the War Secretary, in which they urged "the importance of having a regiment in the British army armed with a rifled arm." At the time, owing to King George of England being likewise Elector of Hanover, there were many regiments of foreigners in our pay, and Manningham and Stewart evidently looked upon the 5th Battalion of the 60th as one of these, and which, as having been raised exclusively for Colonial service, and at the time actually serving in America, could not be reckoned as a part of the regular British army. Whether this assumption of the status of the 5th Battalion of the 60th was a correct one, we must leave to our readers to determine after they have perused this memorandum.

The Continental Powers had for some time recognized the value of riflemen, and most countries had their battalions of Jägers, Chasseurs, or Sharpshooters (in 1796 the Austrians had no less than 15 battalions of riflemen*), the existency of which, coupled with our own deficiency in that branch, had caused anxiety to some of our military commanders.

The result of the Manningham-Stewart paper was, that in April 1800, "an Experimental Corps of Riflemen," as it was termed, was assembled at Horsham, Sussex, formed out of drafts of picked officers and men from about fourteen of our line regiments, the usual number of men supplied by each being 32. It will thus be seen that the Rifle Corps, from its formation, was a *corps d'élite*, and may be fairly described as analogous to the "Mounted Infantry" formed for the Nile Expedition of 1884.

This "Experimental Corps" took part in the expedition to Ferrol in the summer of 1800, where they had their commanding officer and three other officers wounded, and lost some men. The immediate object of the "experimental corps" having been attained, it was ordered to be broken up, the men whose regiments were serving in the Mediterranean being ordered to rejoin; but before this was completed the authorities decided to retain its services, and it was formally embodied with the addition of some further drafts in the autumn, and named the "Rifle Corps." The officers' commissions were dated from August 25th, the day when the Riflemen were first in action at Ferrol, and which day has since been commonly regarded as the "Birthday" of the regiment. The original title of the regiment—"an Experimental Corps of Riflemen"—may be fairly assumed to convey the idea that this was the first experience of a corps of riflemen as a British regiment in the British army, since it is not the custom to make experiments of what is already in existence. The regiment was an "Experimental Corps" in April, the experiment turned out to be a success, as evidenced by its services at Ferrol, and, on its return to England, it was constituted as the "Rifle Corps." From its forma-

* *Cours sur les armes à feu portatives*, pp. 38, 39.

tion, the men were armed with a rifle, and dres'75, entirely in green, as can be proved by the drawi sed of uniforms in the Record Office of the Adjutant Ge of ral's Department. .*



PRIVATE. THE RIFLE CORPS, 1800.
Dark Green Jacket and Pantaloons. The First Dress of the Rifle Brigade.

It is always a difficult matter to prove facts whic and the time of their occurrence many years ago, wer ans, questioned; but it may be taken as a fair indicati Ser- the state of the case that, in a military book publ ease in the early part of the century, the 95th is menti vote as "the only British Rifle Corps," the inference men that the 5th Battalion 60th was looked upon as a fo and colonial rifle battalion. aken

In another book,* published in 1808, which oyal most exhaustively with rifles, various allusions are n was to the "95th" "or the "Rifle Regiment," whilst d to 5th Battalion 60th is not mentioned. ion,

Again, in a diary kept by a private Nicol, of the lion Highlanders, in March 1800 the following entry occ of a "We gave 2 subs, 2 sergeants, 1 bugler, and 30

* *Sclopetaria; or Considerations on the Nature and Use of R barrel Guns.* By a Corporal of Riflemen. London 1808.

Foreign Corps in our service, and which was taken on the British Establishment in 1796, styled "Hompesch's Mounted Riflemen," supplying 400 men to the depôt at Cowes to form the 5th battalion. Thence they were moved to Cork in the month of April, and took part in suppressing the Irish Rebellion of '98. In January 1799 they sailed for the West Indies, when "on their arrival they received 500 of another Foreign Regiment, known as Löwenstein's Chasseurs."* This formation of the 5th battalion deserves most careful attention, as it is the basis upon which the statement has been made that the present "King's Royal Rifles" is the oldest corps of British Riflemen. In order to enlist these Foreigners it was necessary to obtain further powers from Parliament, consequently, the Act of George II. was amended by 38 George III., cap. 13, dated December 30, 1797, empowering the raising of a 5th battalion to the 60th Royal American Regiment, to "consist of 1,000 men, to serve in America, and to be recruited from any foreign troops now in His Majesty's pay or other foreigners who may voluntarily enlist." Section 2 adds, that "all such foreign officers shall receive commissions to be officers in America," and Section 4, that "no such foreign officers shall be enabled to serve as an officer in any places except America *only*."

Thus we have it as an undoubted fact that the 5th battalion was composed of foreigners, for, out of the 1,000 men mentioned in the Act, over 900 were provided out of Hompesch's and Löwenstein's Regiments.

We will now record the addition of the remaining battalions. In 1799 a sixth battalion was raised, partly in the Isle of Wight and partly in Holland; it was, like the rest, composed almost entirely of Germans, and was sent to the West Indies.† Needless to say, it was clothed in red. In order to raise this battalion another special Act of Parliament was passed (viz. 39 Geo. III., cap. 104, July 12, 1799) which empowered a sixth and seventh battalion to be added to the 60th Royal American Regiment, "each to be 1,000 strong, to be enlisted from any of the foreign troops now in His Majesty's pay," etc., and reiterating the clauses about the foreign officers and their incapacity to serve, save in America *only*."‡

The seventh battalion was not raised until 1813, when it was "formed in the Channel Islands from German prisoners of war"; 640 were called "Light Infantry," and 200 "Rifles."§ In the same year another Act of Parliament was passed (viz. 54 Geo. III., cap. 12, December 13, 1813) to raise three more battalions for the 60th, "of 1,000 men each, to consist of any

* *Regimental Chronicle*, p. 3.
† *Ibid.*, p. 3.
‡ *Ibid.*, p. 39.
§ *Ibid.*, pp. 3, 25.

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will thus be clearly seen that the 60th Royal Ame- Regiment was, from its formation, undoubtedly a ial, local, and foreign corps in the true acceptance e terms, in that it was formed for service in the ies, and in a particular locality of the colonies rica), and that a special Act of Parliament was red to form it of foreigners. It was also an in- l part of the British army, in so far as it served wed allegiance to King George II., and was desig- l in official documents as "His Sixtieth Royal ican Regiment of Foot."

e depôt of the Regiment was, on its formation in and up to 1763, in America, when for purposes of nistration it was moved to the Isle of Wight, and it is commonly believed to have remained as long Regiment was considered to be a Colonial corps, ntil 1824, or 60 years.† The 5th Battalion, which eculiarly foreign in its composition, had its depôt the foreign depôt detachment, Harwich in 1816.‡ been argued by some that the fact of the depôt transferred to the Isle of Wight was a proof that lonial and foreign nature of the corps had lapsed, ve shall proceed to show this to be an untenable y, our authority being various Acts of Parliament d to amend that of George II. We may remark he fact of a depôt being in the United Kingdom is oof that the corps for which it trains recruits is a h Regiment (*i.e.* one composed of natives of Great n and Ireland, and available for service in the d Kingdom). The depôt of the Royal African nial Corps was at Chatham in 1837, and for years ious to that; but nobody would deny that it was a ial Corps.

acing the subsequent history of the 60th, we find in 1763 the 3rd and 4th battalions were disbanded

* *Regimental Chronicle*, pp. 1, 2.
† *Regimental Chronicle*, p. 21.
‡ Foreign Corps Pays Lists, Public Record Office.

in America. They were, however, raised again in 1775, and again disbanded in 1783. In 1787 they were raised for a third time, at Chatham, composed almost entirely of foreigners and sent out to the West Indies forthwith.* The Regiment was thus brought up to its original strength of four battalions. This augmentation was the occasion for a lively debate in the Commons, and



OFFICER. 62ND ROYAL AMERICAN REGIMENT, 1758 (PRESENT KING'S ROYAL RIFLES).
Red Coat, Blue Facings, Silver Lace.

we read that it was "resolved to restore the 3rd and 4th battalions of the 60th Regiment or Royal Americans, and to increase the Regiments in the West India Service." † The Secretary at War stated that the increase would amount to 3,064 men, and later that the "vote was agreed on for granting 12,000 instead of 9,000 men for the Plantation service." ‡

The foregoing shows that a separate vote was taken for the "Plantation" service, in which the Royal American Regiment was included.

In the pressure of the Great War, our Army was augmented in 1797 and a 5th battalion was added to the 60th. Since the Regiment was, as at its formation, "a colonial corps and foreign legion," the new battalion was also recruited from foreigners, and we read of a Foreign Corps in our service, and which was taken on the British Establishment in 1796, styled "Hompesch's Mounted Riflemen," supplying 400 men to the depôt at Cowes to form the 5th battalion. Thence they were moved to Cork in the month of April, and took part in suppressing the Irish Rebellion of '98. In January 1799 they sailed for the West Indies, when "on their arrival they received 500 of another Foreign Regiment, known as Löwenstein's Chasseurs." * This formation of the 5th battalion deserves most careful attention, as it is the basis upon which the statement has been made that the present "King's Royal Rifles" is the oldest corps of British Riflemen. In order to enlist these Foreigners it was necessary to obtain further powers from Parliament, consequently, the Act of George II. was amended by 38 George III., cap. 13, dated December 30, 1797, empowering the raising of a 5th battalion to the 60th Royal American Regiment, to "consist of 1,000 men, to serve in America, and to be recruited from any foreign troops now in His Majesty's pay or other foreigners who may voluntarily enlist." Section 2 adds, that "all such foreign officers shall receive commissions to be officers in America," and Section 4, that "no such foreign officers shall be enabled to serve as an officer in any places except America *only*."

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* *Regimental Chronicle*, p. 21.
† *Parl. Hist.*, vol. xxvi. p. 1,282.
‡ *Ibid.* p. 1,306.

* *Regimental Chronicle*, p. 3.
† *Ibid.*, p. 3.
‡ *Ibid.*, p. 39.
§ *Ibid.*, pp. 3, 25.

foreigners who are now in His Majesty's pay, or other foreigners who shall voluntarily enter such regiment," . . . to *serve in any country or place* OUT OF GREAT BRITAIN. Section 2, adds that all foreign officers who receive *His Majesty's Commission* shall be enabled to serve and receive pay in the said regiment.

We have quoted this last Act somewhat *in extenso*, as it should be noted that a decided step in advance is made in it, whereby these new battalions of the 60th Regiment were empowered to enlist men—no longer for service in America *only*—but for service in *any country* out of Great Britain. Thus we see the Regiment at last commencing to lose its original composition of a



OFFICER. GRENADIER COMPANY, 62ND ROYAL AMERICAN REGT., 1758.
Red Coat, Blue Facings, Silver Lace.

local and colonial corps and assuming more the properties of a foreign legion. It had already become the latter *de facto*, but only in times of great national emergency, such as the Irish Rebellion of '98 and the Peninsular War. A portion of it now became one *de jure*.

In 1813, the 8th battalion was formed at Lisbon out of a "provincial" corps: the 9th and 10th battalions were apparently never formed.*

Lastly in 1818 an Act (57 Geo. III. c. 12) was passed giving power to the 60th Royal American Regiment to be employed (or any part thereof) in any country or place *out of* Great Britain, thereby extending the principle of liability to general *foreign* service to the whole Regiment.

We believe that the foregoing quotations from the various Acts of Parliament cited will establish conclusively the fact, that it was unlawful for the 60th Regiment to be employed in Great Britain up to and later than 1818.

Clode, in his valuable work on the *Military Forces of the Crown*, gives a very good insight into the principles involved by the enlistment of foreigners into the British service, and their employment in the United Kingdom. Thus in his notes "on the Employment of Foreign Soldiers," we find the following:—

"The first Act directly sanctioning the employment of foreigners as part of the military forces of the Crown was 29 Geo. II. cap 5. The troops raised under it were for special service in America, and the preamble of the Act states the circumstances giving rise to their employment, thus: 'that for the better defence of the (American) Colonies . . . .' A footnote adds, 'The regiment raised under this Act was subsequently numbered the "60th Regiment"; and by 38 Geo. III. c. 13, was increased by a 5th Battalion of 1,000 men, who might be foreigners.'"*

A study of the Army Lists of the years 1799–1818, and of the Monthly Pay Lists to be found at the Public Record Office will show conclusively that the officers and men of the 5th Battalion *were* foreigners, as indeed were the vast majority of the men of the other battalions.

It is a common and erroneous belief that since "England" appears frequently in the records of the stations of the 60th, they could not have been at the time a colonial or foreign regiment. In the records of the regiment it appears that all of the first five battalions were in England at some time or other of their service, and that two of them were employed in Spain. As the fact of their being thus employed was clearly against the letter and spirit of the Acts of Parliament raising them for service in America, and also against the Bill of Rights (whereby foreigners are prohibited from serving in the United Kingdom), it will be interesting to investigate the several instances in question.

The extraordinary amount of anxiety and jealousy evinced by Parliament at any attempt to employ foreign troops without its permission, or to bring them to the United Kingdom, is one of the most striking features of the relations between the Crown and the legislature in the eighteenth century. Thus, in 1775, when some Hessians (who were the electoral subjects of George III.) were sent to Gibraltar and Malta, Clode states that "both Houses severely canvassed this as an absolute infringement of the Bill of Rights. The Ministers stood on the prerogative rights of the Crown to employ troops

* *Regimental Chronicle*, pp. 3, 25.

* *Military Forces of the Crown*, vol. ii., Appendix 431.

out of the Kingdom, and in time of war, deeming the rebellion in America to be war; however, Lord North offered to bring in a Bill of Indemnity, an admission that foreign troops ought never to be employed in the British Dominions without the previous sanction of Parliament.* Again, in 1782, the Hessians "were brought to this country for a temporary purpose, and, therefore, 22 George III. c. 26, was passed to enable the Crown to billet them."† This was necessary because it is against the law to billet any foreigners in the United Kingdom.

Eleven years later, in 1793, we find Mr. Grey (afterwards Earl Grey) in the House of Commons raising a stormy debate on the subject of bringing foreign troops into the Kingdom. On this occasion, the Attorney-General defended the action of the Government on the grounds that *de facto* foreign troops had been often landed on previous occasions. Next year, the vexed question again cropped up, and resulted in some extraordinary violent debates in both Houses. Of this occasion Clode says: "Again, in 1794, the landing of the Hessian troops in the Isle of Wight, for re-embarkation abroad gave rise to strong protests in both Houses as a manifest infringement of the Constitutional Law. The justification attempted for this measure was that it was *temporary*, that the fact of their landing was immediately communicated to Parliament, and that the prerogative in time of war was not affected by the Bill of Rights."‡

The debates on this occasion are to be found in the Annual Register for 1794,§ and also in the Parliamentary History of the same year.‖

The Ministry, however, carried the day, but protests were entered in the Journals of the House of Lords to the following effect, viz., that "maintaining a foreign army on the establishment, or within the territory of this kingdom is in open defiance of the very Act of Parliament which settles the Crown on the present Royal Family . . . and the Act of the 29th George II. c. 5 is a proof that the legislature deemed a special Act necessary to enable the King to employ even a limited number of foreign officers in America."

We wish to call attention to this citing of the Act of 29 George II., which was the one raising the Royal American Regiment in 1755.

In 1793 we find an Act of Parliament¶ passed to enable certain foreign troops to serve in Europe, the Channel Islands, and any part of the late King of France's dominions. This Act appears to have been passed to facilitate the enlistment of the Royalists who had emigrated from France; but it is interesting to note that the Channel Islands are the only part of the United Kingdom which is included in it.

Early in this century England found herself again entering on a war, which was only finally to terminate with the Treaty of Paris in 1815. It was soon evident



GRENADIER. 62ND ROYAL AMERICAN REGIMENT, 1756.
Red Coat, Blue Facings, White Braid, Smooth-bore Musket.

that it was impossible to try to adhere to the old Constitutional rules as to the employment of foreigners, and we read in Clode that "upon the recommencement of the war in 1803, it was necessary to have recourse to the assistance of foreigners." 44 George III. c. 75 was passed "to confirm and indemnify the persons who shall have advised His Majesty to enlist such people."*

The number of foreign troops was not fixed, but the number who might remain in the United Kingdom was limited to 10,000 men. A large body of men were raised, and, as their numbers in the United Kingdom exceeded 10,000, another Act (46 George III. c. 23) was passed to increase this limit to 16,000, and to indemnify those persons who had advised His Majesty to exceed the former one.

These troops continued in pay till the Treaty of Vienna, and afterwards (by 55 George III. c. 85) till the Treaty of Paris.

* *Military Forces of the Crown*, vol. ii. p. 434.

(To be continued.)

* *Military Forces of the Crown*, vol. i. chap. v. p. 90; *Parliamentary History*, 1775, vol. x., pp. 798–831, pp. 1,330.

† *Ibid.*, vol. ii. p. 433.

‡ *Ibid.*, vol. i. p. 90.

§ *Annual Register*, vol. xxxvi. pp. 198–205.

‖ *Parliamentary History*, vol. xxx. pp. 1310–63, 1424–38, and vol. xxxi. p. 1.

¶ 34 George III. c. 43.

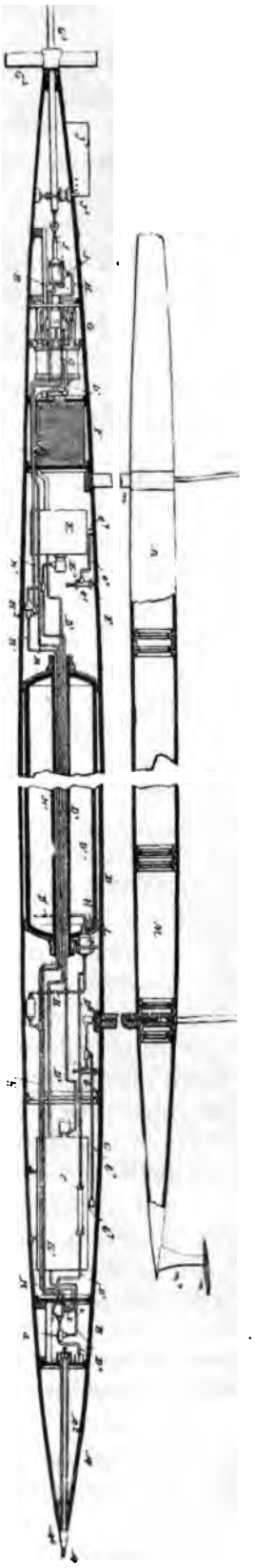
HAIGHT & WOOD'S ELECTRICALLY-STEERED SUBMARINE BOAT.

THE inventions of Messrs. Haight & Wood apply to that class of torpedo-boat which is controlled in its movements from a point without the boat, and connected with it by an electric conductor. The principal improvements consist in devices for submerging the boat to ensure its safety from projectiles; in the means of keeping the boat on an even keel; in the details of construction of the engine by which the boat is moved; in safety appliances for handling the boat when charged; and in the automatic device for mixing the chemicals used to heat and expand the gas employed as a motive power.

In general outline the boat is circular as to cross-section, and it tapers towards the bow and stern on lines preferably curved from end to end of the boat, the extremities being sharply pointed. The hull is made of any suitable material, iron, steel or copper, the latter being preferable. The interior of the boat is divided by bulkheads into a number of compartments. The letter A in the accompanying illustrations denotes the bow compartment or magazine, which contains the explosive charge. B, the next chamber in order towards the stern of the boat, contains a local battery for firing the charge, the safety device in the battery-circuit that prevents the accidental firing of the charge, the valves for starting or stopping the engine, and the electrical devices for operating the valves. C, the next compartment, contains a gas heating and expanding chamber. D, the storage reservoir of compressed liquified carbolic acid gas. E, another gas-heating and expanding chamber. F, the cable chamber, which contains the coil of insulated wire, by means of which the boat is held and guided from the firing point. G, the next, contains the engine, the steering mechanism, and the electrical apparatus for controlling the movements of the rudder.

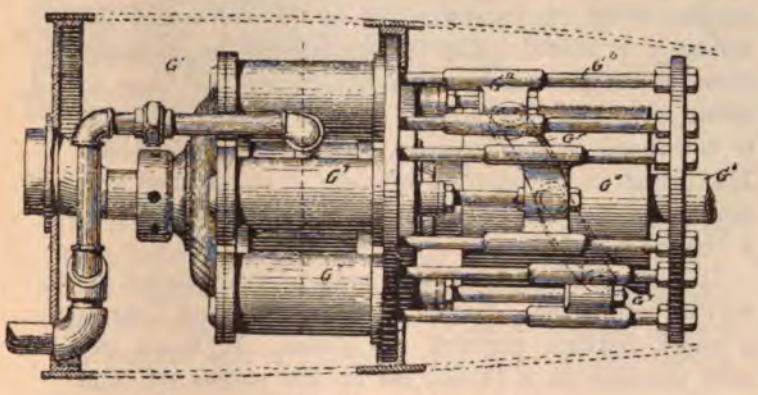
The motive power used in this boat is a gas stored in liquid form under great pressure in the flask or reservoir D^1. The liquid is conducted thence by pipes through heating and expanding chambers to the engine G^1. The latter drives the propeller G^2, which is fast to the hollow shaft G^3. This shaft extends beyond the stern of the boat in line with the axis.

The special means for conducting the liquid from the reservoir to the expanding chamber, so as to prevent freezing, are briefly as follow: The liquid is conveyed from the flask D^1 by the pipe D^2 through the strainer *d* to the throttle-valve d^1, thence to the coil in the heating



SECTION.

and expanding chamber C^1, thence back through a pipe passing through the open pipe D^4, through the flask to the coil of pipes on the other heating chamber E^1, where it is further expanded into gaseous form, and is finally led into the supply pipes of the engine G^1. The latter consists of a series of cylinders grouped about a central hollow shaft G^3, that bears the cam-block G^4, having in its surface a curved cam G^5. Into this cam-groove the pins G^6, on each of the pistons, project, and bear against the faces of the cam in such a manner and position that



THE MOTIVE MECHANISM.

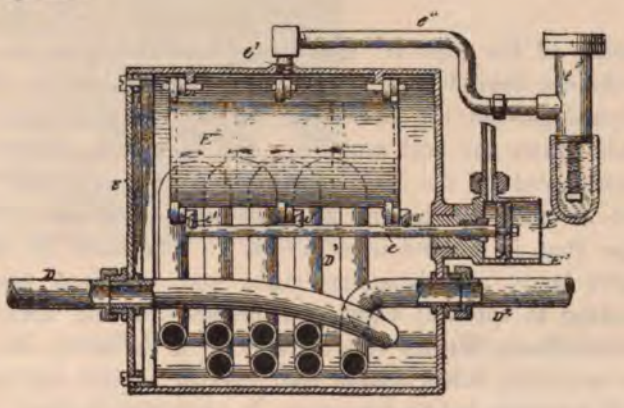
the rectilinear reciprocating movement of the several pistons and rods is translated into a continued rotation of the cam-block, and of the hollow shaft that bears the propeller. The hollow shaft bears a rotary valve g, with inlet ports g^1, and outlet ports g^2, by means of which the supply of gas to, and its exhaust from, the engine and into the hollow shaft, are controlled as the latter rotates.

The strainer d is made by plugging the end of the pipe at any desired point between the flask and the throttle-valve, forming a number of fine perforations d^3, through the wall of the pipe near the end, and enclosing this perforated part in a larger pipe, forming the chamber d^4, that is closed tightly about the pipe D^2 at one end of the chamber, while the other opens into the continuation of the pipe D^2 that leads to the engine.

The gas in the upper part of the reservoir or flask D^1 is conveyed by the pipe H to the throttle-controlling cylinder I, and also to the steering-cylinder J; its supply to the former being regulated by a slide-valve i connected by bell-crank levers to the armature B^2 of the electro-magnet B^1, and to the cylinder J by a slide-valve j connected by similar bell-crank levers to the armature k of an electro-magnet K.

The gas-heating and expanding chambers are similar in all respects, and a description of the chamber E^1 and its mechanism will apply to both. The chamber E^1 is a closed cylinder of any suitable metal, as copper, made in two or more parts, bolted or otherwise fastened together, with openings through the end walls for the passage of several pipes of the gas-circulating system. The pipe D^2 is formed into a coil D^3, within the chamber E^1, in any desired convenient form, and is more or less immersed in the liquid—sulphuric acid and water—which forms part of the gas-heating mixture. To the wall of the chamber is attached the lime-tube E^2, formed in two or more segments hinged together, so that when opened its contents will be dropped into the solution in the chamber. The parts of the tube are held closed by the bolt e, which has sever alarms e^1, each passing through the holes in two or more lugs that are fast to each of the body-parts of the tube. The latter is sprung open when the bolt is withdrawn, by the recoil of the flat springs e^2 that are placed within the tube and curved by the closing of the parts of the latter. This tube is filled with lime broken into pieces of convenient size to aid in ready mixing with the acid solution: and the tube is opened to drop the lime by the pressure of the gas from the tube H^1 upon the piston E^3 that is movable in the cylinder E^4 fast to the end-wall of the chamber E^1, the piston being fast to the outer end of the bolt e.

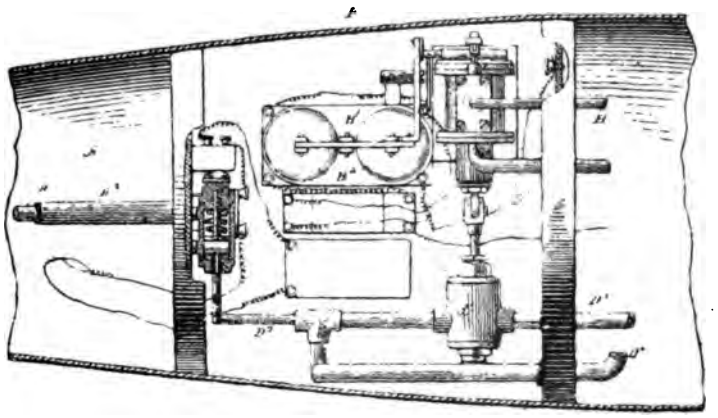
In order to reduce the pressure of the gas formed by the heating mixture, the chamber E^1 is provided with a safety-valve E^5 on the pipe E^6, leading from the opening E^7 in the wall of the chamber, and having a vent through the hull of the boat. This safety-valve is of the ordinary construction, and needs no detailed description.



GAS-HEATING CHAMBER.

The cable, which forms the connection between the boat and the station from which it is directed, consists of two insulated wires, one serving as the conductor for operating the valves of the starting and stopping device, and the other being used to operate the steering and guiding mechanism. One of these wires k,[1] is joined to a binding-post k^2 of the relay k^3, which is connected to the electro-magnet K; and the other end of this wire is connected to a pole-changer at the station, so that the armature of the magnet K can be moved to either pole at will by the movement of a key at the pole-changer. As the armature tilts to one side, the slide valve j of the cylinder J is moved so as to admit the motive power (the com-

pressed gas) into the end of the cylinder through the port j^1, and this forces the piston J^1 forward, moving the rudder J^2 to starboard by means of the connecting rod J^3, that is pivoted to one arm of the frame J^4 of the rudder post J^5. This post is stepped in a shoe fast to the bottom of the boat, is widened in the shape of a frame to avoid the hollow shaft G^3, and projects through the hull at an opening closely protected against leakage by an ordinary packing box which supports the rudder on the upper side of the boat. As soon as the valve j is opened, the gas not only fills into the cylinder, but passes from it by



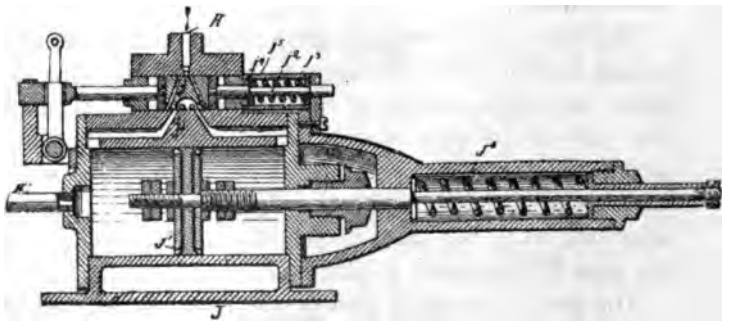
Gas-Regulating Mechanism.

means of the pipe H^1, that leads to the bolt-tripping cylinders behind the fan of the lime tubes of the several gas-heating chambers; and by its pressure at once draws the bolt and drops the lime. At a convenient point in the line of this pipe H^1, is placed a cut-off valve H^2, having an inlet and a passage to a pipe that is secured in a socket in one side of the valve body, and branches right and left into pipes leading to the bolt-drawing cylinders on the several lime tubes. Within the valve body is a valve borne on a sliding-valve system that carries on the opposite end a piston holding between it and the bottom of the cylinder a coiled spring, which in its turn holds the outlet open, except when a great pressure is exerted on the outer end of the piston in the chamber. Into the latter is led the pipe H^3 from the "open" side of the piston in the throttle-operating cylinder I.

By a movement of the key at the pole-changer, the current is broken and the armature is released, which allows the slide-valve of the steering cylinder to move to the central position under the pull of the spring j^3, so coiled about the extension of the valve stem j^2 as to be compressed by the movement of the valve to either side. At the same time, the rudder is brought to a central position by the recoil of the spiral spring J^6 coiled about the piston rod, and seated between a collar on the latter, and the cap on the tube projecting from the cylinder head; while the piston is also returned to a central position in the cylinder.

The arrangement by which the return of the valve and piston to the central position is ensured, is substantially the same in each structure. The valve stem j^2 slides in a sleeve j^4 that also moves in a socket or bearing in the plug in the end wall of the body of the slide-valve chamber. This sleeve at one end abuts against a shoulder on the valve stem, and at the other end against a collar j^5, between which and another collar on the outer end of the valve-stem the spring j^3 is seated. The spring will by this arrangement be compressed by a movement of the valve to either side, and the recoil of the spring will return it to the same central position from both sides alike. The piston in the steering cylinder J is returned to a central position, and the rudder held at "steady," by a similar arrangement.

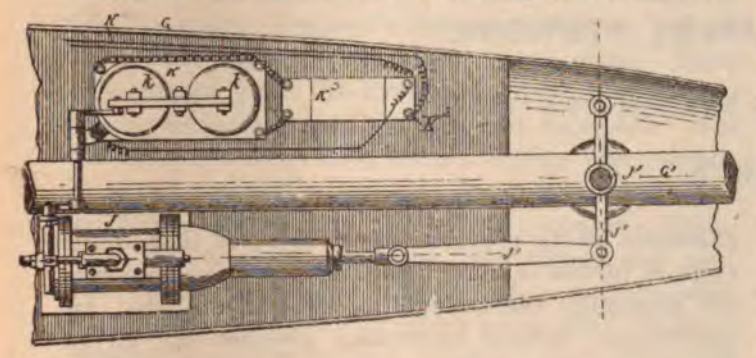
The extent of play of the rudder is regulated by devices within the cylinder J. The piston-rod extends a short distance through the piston. It bears two nuts movable on a thread cut on the piston-rod, and can be set and clamped at various distances from its face. A recess is cut in the back end of the cylinder large enough to admit the end of the piston-rod, but not the nuts; and the distance the piston will move towards the back head is clearly determined by the position of the set nuts. A similar pair of set nuts is adjustable on the rod on the front side of the piston, and a corresponding recess is formed in the back of the front head of the cylinder.



Steering Arrangements.

By moving a key so as to send a current in the reverse direction, the armature, valve, piston and connected parts will be so moved as to throw the rudder to port. Before this movement is effected, the armature B^2 of the magnet B^1 is so moved by a current sent through the wire B^3 from the station, as to move the slide-valve i, which opens the throttle-valve D^1 in the supply-pipe D^2 from the reservoir to the heating chambers. This movement allows the gas from the upper part of the reservoir to pass in the tube H to the cylinder I, and through that into the tube H^1, by

which it is conveyed to the cut-off valve h^2. In order to allow the liquid to be forced into the pipe D^2, and the gas from the reservior into the pipe H, cocks in



ELECTRICAL RUDDER-CONTROLLING MECHANISM.

the plug L must first be opened. This is done by hand before the boat is started from the station.

As regards the safety appliances, it is noteworthy that the firing-pin A^1 projects a short distance beyond the pointed bow of the boat, and has a limited sliding movement in a tube A^2, that extends completely through the magazine from the extreme bow through the closed bulkhead separating the magazine from the next compartment. This pin is held out by a stout string A^3, and when it is pushed inward by striking an object, its rear end makes electrical contact.

In order to protect the boat from injury by projectiles which may be fired at it, it is submerged about three feet, and is held at the desired depth by means of a float M secured to standards or braces *m* rising from the upper side of the boat. This float is similar in shape to the boat, but is somewhat longer, and is filled with cork, cellulose or a great number of inflated rubber bags. The usual guide-rods project from the upper side of the float, and bear flags to indicate its position and direction. The cable is paid out from the cable-chamber through the hollow propeller-shaft in the ordinary manner as the boat moves away from the station.

The float overhangs the stern of the boat and the propeller, and thus prevents the latter from pulling the stern down, and lifting the bow out of the water; while the drag m^1, fast to the bow of the float on the end of the standard m^2, aids in preventing the boat from diving, and ensures a horizontal position. The firing-pin is shut out from the magazine-chamber, so that the charge can be packed well into the bow of the boat without danger of accidental explosion, which would be caused by contact with the pin, if uncovered, as the wires would form an electrical connection, and ignite the fuze.



THE BOAT IN ACTION.

OUR INDIAN MILITARY STATIONS.

By JAMES C. DICKINSON, Retired Staff-Surgeon.

MEERUT.

THE great Cantonment of Meerut was one of the most extensive military stations in India at the time of the Mutiny, and the head-quarters of the Bengal Artillery. It covered an area of some five miles in circumference, the space being divided by a great wall or esplanade, along which ran a deep nullah or ditch, cutting the station into two separate parallelograms, the one containing the European, the other the native force. The ruined wall of the town is extensive, enclosing a considerable space throughout, in which are scattered some good achitectural remains of mosques and pagodas. The cantonment of the British force stationed here is two miles north of the town, and is divided into two parts by a small branch of the Kalee Nuddee, over which are two handsome bridges, one built by the East India Company, and the other by the Begum Sumroo ; the Artillery barracks being to the right, the Dragoons to the left, and the Infantry in the centre. Between the barracks of the two last stood the English Church, the most important structure in every point of view; a great plain or parade-ground stretching out still farther to the northward. A long way off on the opposite side of the ditch were the Sepoy lines which lay to the south of the cantonments. The intervening space was covered by a wilderness of bazaars, extending southwards in the direction of the town. With the exception of certain administrative changes, Meerut has few historical incidents to show during the early British period. But it has been rendered memorable by the active part it took in the Mutiny of 1857 being the place where the first outbreak occurred. Meerut is the station which was always understood and intended more especially to overawe and keep in check the great and populous city of Delhi, the former capital of the Mogul Empire, and the residence of its titular King, from which Meerut is only thirty-eight miles distant, by a straight, level, and capacious road. The unhealthiness of Delhi for Europeans had caused the British Government of India to leave that important and dangerous city garrisoned and kept in immediate control solely by a native force; but it was assumed that, in case of any political or religious movement there, the fidelity of these troops was a sufficient guarantee for the preservation of order; or that in the event of further military demonstration being necessary the proximity and strength of Meerut answered for everything. Medical authorities consider the air of Meerut very healthy for Europeans, and the station was noted for the hospitality of its residents and varied social enjoyments. At one time there were no less than five theatres affording to the inhabitants and visitors the pleasure of dramatic performances, four of these Thespian establishments being supported by the privates of the several regiments.

The action taken by the general in command of the Meerut Division and the brigadier in command of the Meerut station is unparalleled in military history as an instance of hesitancy and incapacity for command in times when promptitude and decision should be the characteristic attributes of a general. "The Fatal Falter" at Meerut, as it has been aptly termed by Dr. O'Callaghan in his vivid description of the mutiny of the native troops, was one which led to the massacres at Meerut, and the still more terrible episode of the siege of Delhi.

The timidity and selfishness of the authorities at Meerut, prior to the fall of Delhi, ruled with fatal effect the military counsels at that station. The authorities, it will scarcely be believed, remained inactive for a fortnight after the outbreak of the Mutiny.

The officers in command had more than sufficient warning of the coming outbreak, as from the beginning of the year disquieting rumours had been afloat amongst the native troops, and the greased cartridge fiction had spread widely through their ranks. In April, a trooper named Brigmohan informed his comrades that he had used the new cartridges, and that all the troops would have to do so shortly; but within a few days, Brigmohan's house was set on fire, and from that time acts of incendiarism became common. Before following the development of the Mutiny it may be well to consider the military occupation in strength and numbers of Meerut, in the commencement of May 1857. I quote from Dr. O'Callaghan's brochure, *Scattered Chapters on the Indian Mutiny*. The books and records of the native regiments were all burned and destroyed during the massacre and conflagration with which the great Mutiny

commenced; but I have been obligingly furnished by the Horse Guards authorities with the numerical returns of H.M. regiments then at the station, and by the officials at the East India House with the strength of the Honourable Company's European soldiers, and, as far as was ascertainable, of the Sepoy corps. There were present H.M. 6th Dragoon Guards (Carabineers); officers, non-commissioned officers and men, 652. The 1st Battalion H.M. 60th Rifles; officers, non-commissioned officers, and men, 901. The head-quarters and 2nd troop, 1st brigade, Honourable Company's Horse-Artillery; officers, non-commissioned officers, and men, 127. Head-quarters and 3rd Company, 3rd Battalion Foot Artillery, with No. 14 Horse Light Field Battery; officers, non-commissioned officers, and men, 98. Finally, there were present, Europeans, instructors, sergeants, and others attached to Artillery head-quarters and the Meerut School of Instruction of that arm, and artillery recruits, 250 men; excluding the large body of European officers and subordinate officials employed in the different departments at division head-quarters, and also the European officers of the Native Infantry regiments. Thus, then, in numericals, the European force at Meerut on the 10th May 1857, when the Mutiny broke out, was of the following strength:—

Cavalry	652
Infantry	901
Artillery	475
Total .	2,028

The troop of horse artillery had its complement of six guns; and the light field battery, with the company of foot artillery, also six guns; total twelve guns, fully armed, equipped, and horsed, and in superb order and condition.

The strength of the Sepoy force at that station was, as nearly as can be ascertained, as follows:—The 3rd Regiment Bengal Light Cavalry, exactly 504 men. The 20th Regiment Bengal Native Infantry, 950 men. The 11th Regiment Bengal Native Infantry, 780 men. There were native artillerymen attached to the troop of horse artillery, to the battalion of foot artillery, and to the horse light-field battery, 123 men. Thus, then, in numericals the native force at Meerut on the 10th of May, when the mutiny broke out, was of the following strength:—

Cavalry	504
Infantry	1,730
Artillery	123
Total	2,357

The native artillerymen, being separate from the cavalry and infantry, and stationed near the Europeans, were unable to take any part in the mutiny, and, of course, had no guns, which were safe in the custody and management of our gallant and ready European soldiers; so that finally the proportions stood thus:—Two thousand British soldiers, cavalry, infantry, and artillery, with twelve guns, in the highest state of discipline and equipment, and on the side of Government and order, against 2,000 native soldiers, without a single gun; mutineers, incendiaries and assassins."

The world will be surprised to hear that the latter were victorious; that in presence of such a British force they carried out their bloody plan of massacre and conflagration with impunity; and, having completed it, retired unmolested to Delhi, there repeated it on a more appalling scale, and inaugurated the enormous mutiny and rebellion which brought the English Empire in India quivering to the very verge of ruin. Events moved on rapidly during this month of April; an old Hindoo prophecy had been raked up which said that in the year 1857—the hundredth since its foundation by the victory of Plassey—the Company's Raj was to be destroyed. Again, it was apparent that nothing was to be hoped from that antagonism of the Asiatic races, which had ever been regarded as the main element of our strength and safety. Mahomedans and Hindoos were plainly united against us. From an unexpected quarter there soon came proof of this union, as now there came from Meerut strange news to the effect that the 3rd Cavalry Regiment had revolted. As a rule, in the cavalry the Mahomedan element was proportionately much stronger, as they were better horsemen and more adroit swordsmen than the Hindoos, and therefore they made more serviceable troopers. It is stated, however, that in the 3rd Regiment of Regular Cavalry, which led off the dance of death at Meerut, there were an unusual number of Brahmins. More than once there had been reports that the Sepoys had risen at Meerut and that the Europeans had been let loose against them, and the native regiments at all the large stations in Upper India were looking in that direction, as for a signal which they knew would soon be discerned. Men asked each other what was the news from Meerut and looked into the native papers for the suggestive heading, for it was the cradle of all sorts of strange and disturbing stories. In this month of April its crowded lines and busy bazaars were stirred by indefinite apprehensions of something coming. Every day the excitement increased, for every day some new story, intended to confirm the popular belief in the base designs of the English, found its way into circulation. The emissary of evil was at Meerut, in the guise of a wandering Fakeer, or religious mendicant, riding on an elephant, with many followers. That he was greatly disturbing the minds of men was certain. The frequent visits of the men of the native regiments to him attracted attention; so the police authorities ordered him to depart. He apparently complied, but, it is said, he

stayed some time in the lines of the 20th Native Infantry. "In no place was the story of the greased cartridges discussed with greater eagerness than at Meerut; in no place was there a more disturbing belief that this was part of a great scheme for the defilement of the people." (Kaye). In the beginning of the fourth week of April the excitement, which for many weeks had been growing stronger and stronger, broke out into an act of open mutiny. Before describing what this mutiny was and what it led to, the reader should have some knowledge of Major-General Hewitt, who then commanded the Meerut division, and Colonel Carmichael Smyth, who commanded the 3rd Light Cavalry.

General Hewitt is thus described by Dr. O'Callaghan: "An officer totally unfit, both as regards mental capacity and physical vigour, for any command whatever. To show the state of affairs that ruled in our armies previous to and at the period in question, that, I believe, still exists, and most probaby will continue till the end of England's prosperity, I may mention that this officer had been nominated to the command of the Peshawur Division; but that important position on our extreme North-Western frontier, and in the immediate front of Cabul and Central Asia, being considered to demand the presence and administration of a general officer of known ability and energy, Major-General Hewitt had been transferred from the remote and unhealthy valley at the mouth of the Khyber Pass, to the most desirable divisional command in the Upper Provinces of India, which was Meerut. He had been fifty years in the service and was approaching seventy years of age, corpulent and disqualified for energetic action, a *bon vivant* fond of the pleasures of the table; and for the rest, hospitable, kind, and an excellent private character. It was not his fault that he was commanding at Meerut in May 1857; but it was a terrible misfortune to the Empire, and the cause of the darkest public and private calamities, which doubtless had been in a great measure, if not entirely, averted had the superb European force above detailed been in the directing grasp of a resolute, vigilant and energetic officer. Such a man with that body of troops in hand would have taken a terrible, victorious initiative; and if his blow had not actually made the mutinous Bengal army hesitate and cower down, it would certainly have averted the massacres of Meerut and Delhi, and immensely have ameliorated our position in the inevitable conflict. Such, however, was not our destiny; and the Sepoys knew very well the man with whom they had to deal."

Colonel Carmichael Smyth commanded the Third Regiment of Native Cavalry. He had graduated in the regiment, and had seen some service with it, but he had never earned the entire confidence of officers or men, and was considered a hard and unpopular officer. He was not wanting in intelligence or zeal, but he lacked temper and discretion, and the unquestionable honesty of his nature was of that querulous, irritable cast which makes a man often uncharitable and always unpopular. He had a quick eye for blots of every kind; and, being much addicted to newspaper writing, seldom failed to make them known to the public. Nobody knew better than Colonel Smyth that the Bengal army was hovering on the brink of mutiny, and he had even written to the Commander-in-Chief to inform him of the dangerous state of the army. But when the general order went forth that the men were no longer to bite the cartridges, Colonel Smyth thought that the opportunity was one of which he should avail himself to allay the excitement in his own regiment, and he therefore held the parade of the skirmishers of his regiment on the 24th April. On the preceding evening, a report ran through cantonments that the troopers would refuse to touch the cartridges, and a fire which broke out in the evening boded disaster. In the course of the night the Colonel was informed that the men desired the postponement of the parade; but, as he had heard that the whole army was going to mutiny, he felt that to yield to such a remonstrance would be a sin. The parade was held, and of ninety men to whom the ammunition was to have been served out, only five obeyed the orders of their officer, although he pointed out to them how the new regulations had been drawn up out of consideration for their scruples. They were dogged and obdurate, and would not touch the cartridges. He could only break up the parade, and order a court of inquiry to assemble. The court elicited the fact that, as at Umballah, genuine fear not of the cartridges, but of public opinion, had influenced the mutineers.

A report of the proceedings was sent to the Commander-in-Chief, and his orders were awaited. All this time nightly fires told of the evil passions which were working in the Sepoys' hearts, but few heeded the warning. Early in May a message came from the Commander-in-Chief ordering the mutineers to be tried by a Native General Court-Martial. The prisoners were then confined in an empty hospital, and a guard of their own regiment was placed over them. On the 6th May the Court commenced its sittings, and continued its proceedings the two following days. The prosecution elicited no new facts, and, indeed, the whole case of military disobedience was so clear, that the trial, though it was protracted during three days, was little more than a grim formality. The Court, by a vote of fourteen members against one, found the eighty-five guilty, and sent them to imprisonment and hard labour for ten years. But with this there went forth a recommendation to "favourable consideration on account of the good character which the prisoners had hitherto borne." General Hewitt, in approving and confirming

the sentence, added: "To the majority of the prisoners no portion of the sentence will be remitted; but I remit one-half of the sentence passed upon the following men, who have not been more than five years in the service."

The sentence was to be carried into effect on the 9th May. On that morning, beneath a sunless sky darkened by rolling storm-clouds, the whole brigade was assembled to see the culprits disgraced. Stripped of their uniforms, these miserable felons were handed over to the smiths, who riveted fetters on their arms and legs; and soon, in the presence of that great concourse of their old comrades, the eighty-five stood, with the outward symbols of their dire disgrace fastened upon them. Lifting up their hands and lifting up their voices, the prisoners implored the General to have mercy upon them, and not to consign them to so ignominious a doom. As they were being led away, they yelled out curses at their colonel. Then, seeing that there was no other hope, they turned to their comrades and reproached them for quietly suffering this disgrace to descend upon them. Their brethren, choking with suppressed indignation, longed to strike a blow in their behalf; but fear was stronger than the thirst for vengeance. The prisoners were marched off to their cells, to be placed under the custody of a guard of their own countrymen.

Lord Canning's commentary on these proceedings may be given here. "The riveting of the men's fetters on parade, occupying as it did several hours, in the presence of many who were already indisposed, and many who believed in the cartridge fable, must have stung the brigade to the quick. The consigning the eighty-five prisoners, after such a ceremony, to the jail, with no other than a native guard over them, was, considering the nature of their offence, and the known temper of a part of the army, a folly that is inconceivable."

There was an unnatural stillness in the lines for the rest of that day; an unwonted respectfulness in the manner of the Sepoys towards their officers. But none could interpret the omen. The lines of the Sepoys were too far distant from the dwellings of the Europeans for the latter to hear what Mussulmans and Hindoos were saying of them. Officers jested at mess; civilians talked over the work of the day; ladies chatted gaily in their verandahs.

On the Sunday morning the church held its usual congregation. There was indeed a lull, but the signs of it, afterwards noted, clearly presaged that there was something in the air; and when the worshippers returned to their homes, they hardly noticed the unusual absence of their native servants. Here, as elsewhere, the self-satisfied Englishman knew nothing of the inner life of the despised races around him; and he was punished for his neglect by the moral blindness which would not let him guard against their vengeance. Men of all kinds were arming themselves. The dangerous classes were in a state of unwonted excitement and activity. Hatred of the English, desire for revenge, religious enthusiasm, thirst for plunder, were all at work within them; but paramount over all was a nameless fear, for, ever as the day advanced, the report gained strength that the English soldiery, armed to the teeth, would soon be let loose amongst them.

Towards sunset the Christian residents prepared as usual for Church. One of the chaplain's native nurses warned him that there was danger, and besought her mistress to remain at home, and said there was going to be a fight. But the chaplain listened incredulously to



THE BARRACKS AT MEERUT

the statement, and, taking his wife and children with him, entered his carriage, and was driven to church. But, as he approached the church, his ears caught the sharp reports of volleying musketry; and, looking up, he saw clouds of smoke ascending from burning houses into the air. The woman had spoken the truth. In the church compound he met his colleague and other Christian people, with a look of anxious inquiry on their pale scared faces. Sounds and sights had greeted the church-goers on their way, which could not be misinterpreted. It was the dread with which the Sepoys regarded the movements of the Rifles, whose assemblage for church parade they interpreted as the signal for their own imprisonment, that precipitated an outbreak which, not having been definitely pre-arranged, might otherwise have been deferred till a later day. The 3rd Cavalry were naturally the most excited of all. Eighty-five of their fellow-soldiers were groaning in prison. Sorrow and shame and indignation were strong within them for their comrades' sake, and terror for their own. Mr. C. I. Wilson, in his interesting Moradabad Report, writes: "'The frail ones' taunts were heard far and wide, and the rest of the regiment was assailed with words like these:, 'Your brethren have been ornamented with these anklets and incarcerated, and for what? Because they would not swerve from their creed, and you, cowards as you are, sit still, indifferent to your fate. If you have an atom of manhood in you, go and release them.' And they believed that what they had seen on the day before was but a foreshadowing of a greater cruelty to come." What took place at Meerut on the night the mutiny broke out is taken from Dr. O'Callaghan's work previously alluded to:—

"About 5 o'clock in the evening the 3rd Light Cavalry, joined by the 20th Native Infantry, commenced the insurrection, mounting and arming suddenly, and the greater portion of the latter regiment rushing from their own lines to those of the 11th Native Infantry, to do which they had to cross the parade-ground of the last-named corps. When they moved off for this purpose, a strong party of the cavalry, forming and drawing their swords, set off for the great jail to release their comrades imprisoned the day before, and it was their appearance, armed and furious, in the streets, and calling out to the populace to rise against the English and the Christians, together with the musketry-fire that was now audible from cantonments, that served as the signal for the brutal populace of the bazaars, joined by their rustic companions, to commence the work of conflagration and massacre. . . . The first evidence of the insurrection of the troops was, as I have stated, the signal for the assembled *canaille* and murderers to burst from their rendezvous and their dens; and so rapidly did they emerge upon the station, that in a few minutes they overflowed it, as it were, and occupied all the streets, bazaars, and roads from the native lines on the west, close up to the Artillery School of Instruction on the north-east, not venturing, however, far into the European infantry lines and officers' residences, which terminated their advance in that direction, and not approaching the dragoon lines at all. Having flooded all this space, they then turned in separate bodies on the European houses and bungalows within its *enceinte*, set fire to and plundered them, and massacred all the inmates who were not so fortunate as to effect a narrow escape by flight or concealment. In this scene of conflagration and butchery they revelled undisturbed for some hours, sparing no European life or property that came under their merciless hands, and being aided soon after the commencement of their bloody work by the enormous herd of felons who were released from the great jail when the delivery of the 3rd Light Cavalry troopers took place. This release and the jail-breaking were not, as is generally believed, primarily effected by the body of the 3rd Cavalry which started for that purpose at the commencement of the insurrection, but by the native infantry guard at the jail, who, faithful to their compact with their brother mutineers, promptly performed their assigned part in the revolt. . . . The officers of the native regiments were, for the most part, first made acquainted with the fact of disturbance and fighting having occurred in their lines, by the reports of their servants, the intelligence being immediately confirmed by the loud noise and sound of firearms proceeding from that direction. Most of the officers of the 3rd Light Cavalry at once proceeded to the lines of their regiment, arming hastily, and ordering their horses to follow; but I have never been able to discover that the officer commanding the corps repaired to his post, or was seen in the lines or amongst the men during the whole of that eventful evening and night; and it would appear that Colonel Smyth was so fortunate as to make an early escape into the protection of the European military quarter." The other officers who were early on the ground, did all in their power to restore order and hold their men to discipline and obedience, but the great majority of the regiment was in open mutiny. Three officers of the regiment were murdered on that evening.

The part of the 20th and 11th Regiments of Native Infantry was soon played. In the case of the former, the officers never saw a probability of restoring order from the first moment of the mutiny into which the corps burst unanimously, four of the officers being killed in the very commencement, and others wounded in escaping from the hopeless task of checking the revolt. The officers of the 11th Native Infantry also repaired to the lines of their regiment, Colonel Finnis being the first to mount his horse and advance into the scene of uproar and confusion. Addressing the muti-

nous 20th he received a fatal wound, and, falling from his horse, was immediately despatched by the Sepoys. Upon this the 11th broke open the bells of arms and seized their muskets; and their officers, seeing the regiment in full mutiny, escaped from the lines and the fire that had now become brisk. Thus, then, the entire station of Meerut, with the exception of the Rifle and Dragoon lines, was involved in mutiny, insurrection, fire, and the slaughter of Europeans and Christians, while it was still broad daylight.

Let us now look to the Europeans, England's two thousand soldiers. The Dragoon officers had all come upon the parade, and the men were saddling, accoutring and mounting with eagerness and alacrity under their orders, so that in as short a time as could have been expected, the regiment was ready. Can it be believed possible that Colonel Custance, at so critical a period as this, allowed the non-commissioned officers to move the several troops, calling the roll calls, as is usual, before an ordinary parade or review in time of peace? Yet it is so asserted by Dr. O'Callaghan, and in a letter from Captain Le Champion (Möller), 101st Foot, to Sir John Kaye, he writes: "*and I heard the roll called in the troop nearest me.*" General Custance writes, "that the roll-call which Captain Möller heard must have been that of the unmounted men of the Regiment"; and Sir John Kaye adds, "Here I must leave the question for the judgment of the public." It must suffice to state that no immediate effort was made to rescue the European and Christian community of Meerut, hemmed in and surrounded by the merciless mob and mutineers, and suffering the worst horrors of death. "From the ground on which the Dragoons mustered, to the lines of the 11th Infantry, the nearest edge of the insurrection, and of the atrocities that were being enacted, was an easy canter of at most three minutes; and I assert that, had the troopers, as they got ready, been led by their officers and troop-sergeants down the level road to the rescue, they would, in half an hour, have made all Meerut their own, and saved vast numbers of the European unfortunates who were still holding out in hope of relief, or as yet successfully concealed. Not a man would have stood to await the charge of even a sergeant's party of the Carabineers. Night and darkness came on whilst the Dragoons were still ready for action; the delay was occasioned by waiting for a staff officer, who arrived soon after dark. But instead of taking the road to the left, leading straight down to the Native lines and the burning station, we turned off to the right, for what purpose and with what object, I could never hear, and leaving the mutineers and the conflagration in our rear, moved off at a trot to the eastward, along a narrow road into the dark and silent country. After a time the bugles sounded a 'Halt,' and lastly 'Threes about,' and we commenced retracing our steps towards the Native cantonments, and on the parade ground of the 11th Native Infantry we found the Rifles and the Artillery. These two corps after having disarmed a havildar's party of the 11th Native Infantry, and placing strong guards over the barracks and lines, set out for the Native Infantry Lines, disarming the Native Guard at the Treasury on their way, but did not reach the ultimate place of rendezvous till long after dark, nor did they meet the slightest opposition or see an enemy all along the route. Thus, each arm of the excellent and efficient force at Meerut on the fatal 10th of May 1857, found itself marching in the manner I have described, and without striking a single blow or firing a shot *en route*; to fight an enemy whom it had allowed to escape, after having massacred its friends and fellow countrymen, whom it had failed to succour and to save. Later on, and when very dark, the Artillery were ordered to advance to the front and open fire into a copse or shrubbery in which it was thought the enemy were awaiting us, which was immediately done with several rounds of grape; but there being no fire in reply, the guns again limbered up and fell back. After this useless and ineffectual demonstration, we turned our backs upon the retreating and flying enemy and faced round towards the station. Our entering and traversing the station had, however, the effect of saving and delivering such of the Europeans and Christians as still survived, either by defending themselves in their houses, by the fidelity of their servants, or by concealment."

The world will doubtless wonder, how in presence of such a British force, such serious calamities could have overtaken us? Justice to the brave regimental officers and men then at Meerut demands that they should not bear the blame which they do not deserve, and that upon them should not be cast the shame and the responsibility of the destruction of the station, the slaughter of their countrymen, women and children, the escape of the Sepoy regiments and their confederates, and the terrible consequences which immediately followed these disastrous events.

Major-General Hewitt, who commanded the Meerut Division, ignored and refused all responsibility and command, as regarded the station, its safety, and the protection of the inhabitants, and left all these things to the Brigadier-General Archdale Wilson, who, although "a very good officer," was not a man of action. Brigadier Wilson, with more than sufficient means at his disposal, failed, and let his enemy slip through his fingers. "With a superb European force, perfect in all arms, and manageable to every advantage, he allowed an inferior force of native mutineers to rise in arms, slaughter their officers, release the felons from the jail, and uniting with a contemptible mob of cowardly and fanatical assassins, to burn down the finest

station in Upper India, and shed British and Christian blood in torrents. When this riot of fire and blood had lasted for some hours, and not till then, Brigadier Wilson collected his force, to no purpose, and, permitting the mutinous regiments to pursue their way unmolested to Delhi, there to establish the insurrection *en permanence*. He shrunk up with his two thousand Europeans on the Meerut parade-ground. Nor was this all, for unequal to the emergency himself, he would not allow Captain Charles Rosser to pursue the mutineers into Delhi. Captain Rosser rode up to Colonel Custance, and through him expressed himself to Brigadier Wilson in the following soldier-like words: 'If you, Sir, will get me two squadrons of the regiment, and three or four Horse Artillery guns, I will pursue the mutineers and ride into Delhi now.' And he would have done it too, in masterly and triumphant style. The answer was, that the Brigadier 'did not wish to divide the force,' of which, as the reader perceives, he was making such good use in a formidable mass. Had Rosser's noble and devoted offer been accepted, there is every reason to affirm, from what took place next day at Delhi, that not only would the frightful massacre of Europeans and Christians there have been totally averted, but that, in addition, the first effort of the mutiny would have been dislocated and foiled, and we should have grasped all the advantages of the first success, which in war is generally, in insurrection always, of inestimable value." The calamitous results that were entailed upon us by the falter at Meerut, and the consequent capture of Delhi, are, and will ever remain, beyond the bounds of human calculation. I regret that space has not allowed me to extract more fully from the *Scattered Chapters on the Indian Mutiny: The Fatal Falter at Meerut*: a correct and truthful account which has never been sufficiently quoted by the historians of the Indian Mutiny.

J. C. D.

NAVAL AND MILITARY NOTES AND QUERIES.

Torpedoes.—Clock-machines, or torpedoes, were introduced into European warfare by the English, being intended to destroy Napoleon's ships at Boulogne in 1804. It is remarkable that the use of them was first reprobated by Captain Bronton, and by Lord St. Vincent, who foresaw that other Powers would in turn adopt the innovation. The French, who picked up some of them in Boulogne, called them infernal machines. But at present they seem fairly established as part of good warfare, in default of any international agreement against them, such as that which exists against explosive bullets.

Naval Mediæval Tactics.—Our ancient chroniclers were so ignorant of the science of naval war, that but little confidence can be placed in the particulars which they have handed down to us. We must content ourselves with the general knowledge that odds were on the side of the French, and victory on the side of the English, while even Philip's Genoese allies, however invincible in the Mediterranean, were forced to own that they had found their masters in the British Channel. Indeed, our most formidable enemies at sea at this period were the Scots, a captain of which nation, by name Mercer, having, in the reign of Richard II., collected a small squadron of privateers, greatly harassed our commerce, capturing some of our ships, even under the walls of Scarborough Castle. And his success attached to his command some allies from among the French and Spanish seamen; so that he gradually found himself at the head of a powerful fleet, with which he swept the North Sea, making many prizes. It is a curious instance of the weakness of our Government, if, indeed, we may not rather say of all Governments, at that time, that his overthrow at last was owing, not to the exertions of any of the King's officers, but to the enterprise of a single merchant, one John Philpot, an alderman of London, who, at his own cost, fitted out an expedition against him, and defeated him, capturing his entire squadron and all his prizes. Yet those in authority were so little inclined to see the duties which they themselves neglected performed by others, that Philpot was summoned before the King's Council, and had some difficulty in escaping legal punishment.

R. O'Byrne.

A NEW GERMAN OVERCOAT.

(From the *Militär Wochenblatt.*)

THE question of infantry equipment is not yet solved in Germany. The authorities have introduced a new knapsack which seems to have met general approval, and they are now occupied in finding an improved form of overcoat. The difficulty is to devise a coat which shall be comfortable alike in hot and cold weather. In the pattern at present under the consideration of the German War Office, two main objections have been found. The collar, which has been made sufficiently large to cover the neck and the lower part of the head in cold weather, is uncomfortably hot in summer. The hood, moreover, is, at present, so small that the wearer is obliged to doff his helmet in order to get it over his head, thus running considerable risk of taking cold.

The arrangement shown in the accompanying diagrams is intended to obviate these disadvantages. As may be seen, two collars are provided. The larger, intended for winter wear, is made to button over the small upright collar, which alone is worn in summer. For this purpose the latter is provided permanently with a number of buttons on its lower edge.

The hood, which should be made of the best wool, is sufficiently large to fit over, and not underneath, the helmet. When not in use it may be allowed to hang below the collar, as in the diagram.

In Fig. 1 it will be seen that although the overcoat is single-breasted, having only one row of buttons, yet practically it is cut on the double-breasted principle, the left side wrapping well over to the right, an arrangement contributing to supply extra warmth to the chest of the wearer. The small buttons on the collar are intended to fasten on the detachable collar.



FIG. 1.
FRONT VIEW.



FIG. 2.
DETACHABLE COLLAR.

Fig. 2 presents a side view of the coat, in which the lap over to the right is more distinctly shown. The collar attached when turned down is considerably higher

than the fixed collar; completely covering the neck it reaches to the soldier's chin, and acts like the boas worn by ladies.

Fig. 3 shows the back view of the detachable collar with hood pendant. The thoroughly serviceable character of the former is apparent.

In Fig. 4 we see the complete arrangement in use. The collar elevated to its full height, fully covering the ears of the wearer, and reaching to the peak of his helmet. The hood stretched over the Pickelhaube protects the back of the head, and the mouth-strap joining the end of the collar acts, to all intents and purposes, as a respirator. It will be observed, although not shown in the diagram, that the hood need not necessarily be worn over the helmet when the collar is fully turned up; sewn on the outer edge of the collar, it may hang down the back (as in Fig. 4), but not so low by the full depth of the collar.



FIG. 3.
HOOD HANGING FREE.



FIG. 4.
COLLAR, HOOD, AND MOUTH-STRAP.

posals of the Royal Engineers were not necessary, but in spite of all warnings, fresh works were undertaken, and instead of raising the targets a few feet from the ground, to stop the low shots from ricocheting (a matter of comparatively small expense), a yawning pit was dug, measuring some eight feet in depth, in front of the targets, and gradually sloping up towards the firing points for about seventy yards—the simple navvying having involved an expenditure of many hundred pounds. The clay thus excavated has been built up into high walls encircling the two shorter ranges, and continued right down to the butt, so as to isolate each distance as far as possible, giving the whole the appearance of a substantial earthwork intended to stand a serious assault. With much blowing of trumpets this wonderful range was opened, but the Governor of the Prison objecting to the convicts being shot by stray bullets, it had to be suddenly closed again.

In this state of confusion worse confounded Mr. Morris applied for an official competition of his safety range with those erected by the Royal Engineers. The trial came off before Viscount Wolseley, Lieut.-General Sir Arthur Herbert, and other officers of the Headquarters Staff. Colonel Tongue, Commandant, and Major Salmond, D.A.A.G., of the Hythe School of Musketry, were present, together with Colonel Hamilton, Colonel Dawson-Scott, and Major Hurst, Royal Engineers.

Experiments began with Mr. Morris's Safety Screen, at which Major-General Philip Smith and several picked marksmen of the Grenadier Guards fired some fifty shots at all possible angles, for the purpose of discovering any weak spots. In spite of every effort in this direction, no ricochet or other dangerous deviations from the line of fire occurred. The screen answered perfectly the purpose for which it had been devised. Similar trials were afterwards made with the formidable-looking structures erected under the direction of the Royal Engineers. Major Salmond fired several shots without striking either of the deflecting plates. His tenth bullet, however, just grazed the edge of one, and passing over the bank intended to stop such missiles, ricocheted about a hundred yards in front of the firing point. Had the ground been hard this shot would probably have passed clear over the butt and created some alarm among those dwelling in the district beyond. Ricochets are to be specially guarded against as likely to do most harm, and the more costly structures evidently do not prevent their occurring. In the erections designed by the Royal Engineers the essence of Mr. Morris's invention has been adopted with its chief element of safety eliminated. For all purposes required, the Morris Safety Sheds, twenty of which can be erected for about £800, are more effective than the unsightly structures devised by the Royal Engineers, on which it is stated that £10,000 have been expended. This is amply demonstrated by the very practical experience which has been obtained from the shooting of volunteer recruits during the past two years on Volunteer ranges elsewhere where this system has been applied, and which ranges formerly were closed on account of bullets ricocheting away behind the butt.

In rifle-shooting on open ranges, when the rifle is not properly aimed and sighted, the projectile may do serious damage by deviating laterally, or by passing over the butt, or ricochetting from the ground. The Morris safety screens provide against such danger by confining the projectile within safe limits. For this purpose several screens are interposed between the firing-station and the butt, having through them, in the proper line of trajectory, embrasures large enough to allow for a little deviation, either horizontally or vertically, but not for so much deviation as would permit the projectile to pass the butt. The embrasures are so arranged that the marksman can see about twenty feet of the butt on either side of the target and nine feet above.

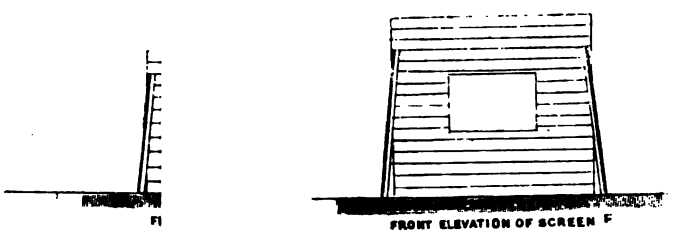
In order to lessen the risk of ricochetting the target and firing-station are raised several feet. The screens for long ranges have, besides the embrasures for the projectiles to pass through, other embrasures lower in the screens and in direct line of sight, and these are made sufficiently large to permit the marksman to see through them the whole of the butt.

Description of Diagram.

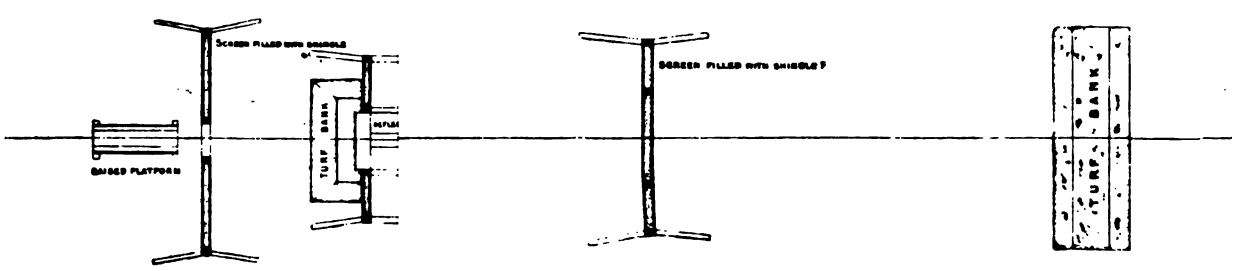
At the firing-point is a sloping platform marked out to suit each particular height of man, so that the marksman, whatever his stature, can always take on the platform such a position that his firearm is at the proper level. He should, when aiming, just see the bottom of the target and a white horizontal line, painted on the butt, eight feet above the target. Immediately in front of the platform is placed a screen (A) composed, on either side, of boards and filled up with shingle. The object of this screen is to at once stop any bullets fired accidentally, or through carelessness, in a very wide direction.

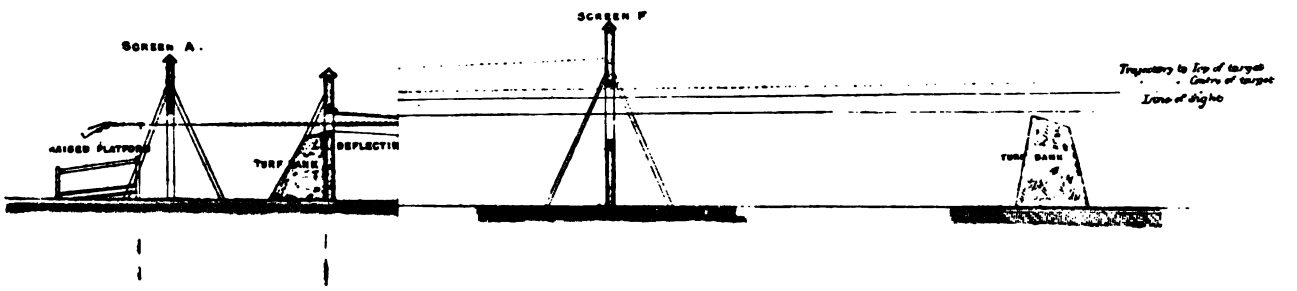
A little further towards the target is placed a similar screen (B) with a turf bank in front of it. The bank receives the bullets which are fired very low, the result of "bobbing," &c., while the screen receives the wide shots which escape screen (A). Behind screen (B), and from the sides of the embrasure therein, slope long steel plates placed at a slight angle, and these deflect all high and wide bullets entering the embrasure, into the turf bank placed in front of ricochet chamber (C).

The ricochet chamber has in front a shingle screen several yards in width. At the base of the embrasure in this screen is placed a steel plate under the proper trajectory of the bullet, and similar to that in screen



FRONT ELEVATION OF SCREEN F

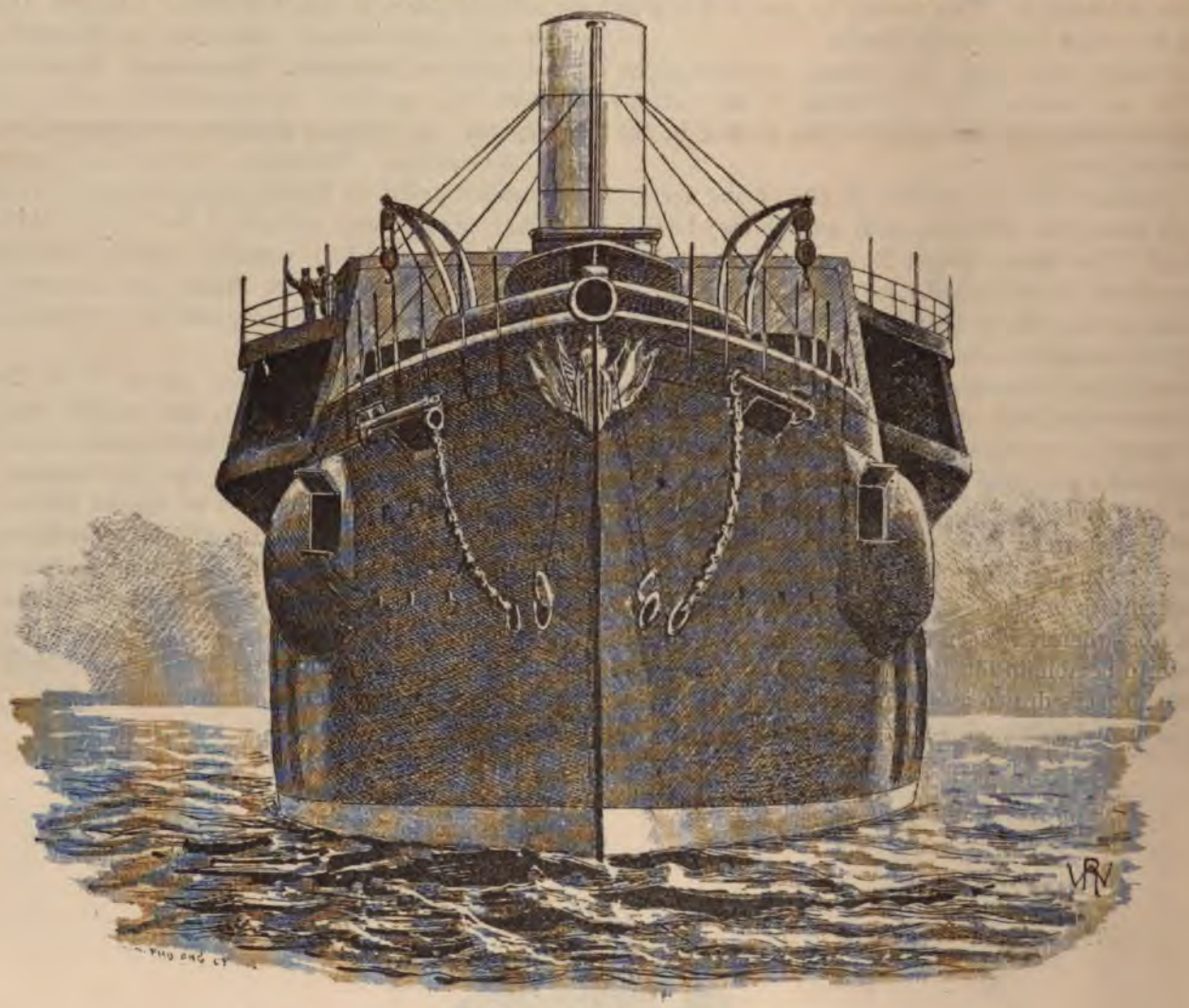






THE UNITED STATES NAVY OF THE FUTURE.

THE contest between defensive naval armour and artillery, which has been going on persistently since the *Monitor* and *Merrimac* fought their famous duel at Hampton Roads, has, at last, reached a point where naval construction at least seems to pause to take breath. At sea such ponderous armour-clad monsters as the *Thunderer*, *Devastation*, *Benbow*, *Inflexible*, and *Trafalgar* have been defiantly launched to awe the world. By land, France and Germany keep their standing armies at an apoplectic fulness, while their gun-foundries are ablaze night and day, turning out modern ordnance, which (on paper at least) heads the race until some newer and tougher-skinned leviathan is launched, and restores the balance for awhile. The French have always been good modellers of marine architecture, and their productions were ever of that swift, graceful type that excited the admiration and envy of other maritime powers. Unfortunately for themselves, they did not manœuvre or fight their ships with the skill they merited; and from as far back as history relates, we find that when the Gaul turned out a particularly good craft, the Briton lost little time in trying either to fight her off the seas, or capture and sail her himself. In the War of Independence the best and fastest American ships were modelled after the French. The frigate *Constitution* and her sister vessels often found themselves in combat with vessels of like construction that had been captured from France by the British. The *Constitution* captured the *Guerrière*, a French ship manned by English, and the *Bon Homme Richard*, a superannuated French frigate, commanded by Paul Jones, captured the English-manned French ship *Serapis*, and the same process still continues in a modified form. Of course it is not done by



"CHICAGO." BOW VIEW.

capture, but the French type can be distinctly traced in all the modern ships, be they Russian, German, British or American.

Of the future of the United States' navy it may be said that since the Civil War they have been quietly and inexpensively watching the improvements going on among European states, and when they decided on rebuilding a navy, they eschewed all models on the *Benbow*, *Inflexible*, etc. lines, and determined to adopt the type of French fast-sailing vessels. A general impression prevails (whence derived we know not) that the new cruisers designed for the United States navy are armour-clad, or at least shot-proof. This is not the case. Of the four vessels *Dolphin*, *Atlanta*, *Boston*, *Chicago*, so far finished, not one has a thickness of side, for life." And the man was right. It seems that modern war-ships, like modern armies, must eventually leave off armour, and strip for the fight.

As in the duel between armour and artillery, the latter has won up to this, it seemed to America in reconstituting her navy, that the best thing to be done was to build for defence a dozen or two of the familiar flat homely American monitors, and add extra thicknesses of metal to their turrets, as the big guns grow larger, and to keep the said cruisers out of their range altogether.

We herewith give some exterior views of the *Chicago* as she now lies at the Brooklyn Navy Yard. She is a handsome, stately vessel of the thin-sided kind. Her decks are broad and open, with appointments of the



"Chicago" Broadside View.

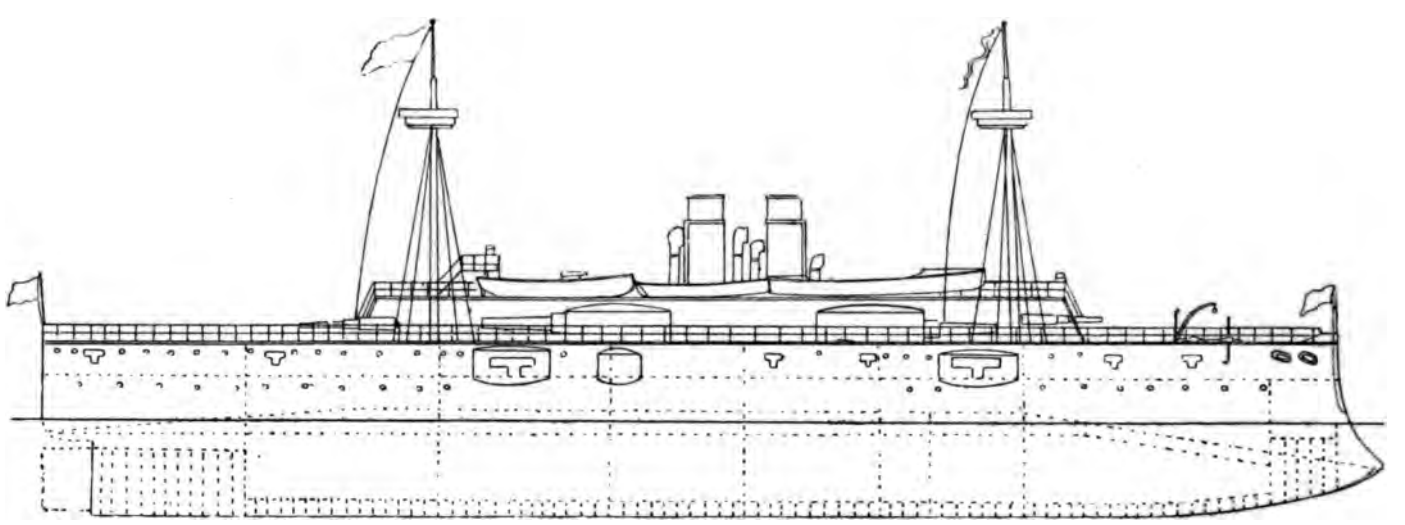
says a New York contemporary, to prevent the entrance of a good-sized rifle bullet, and an able-bodied man with a sledge-hammer could, in ten minutes, make a way in for himself. During a conversation with one of their gunners, he said "the thinner they can make these ships and float them, the better. There 's no ship in existence whose sides will keep out the best modern cannon-shot, and if they pile on the iron to the utmost extent the concussion will shake the ship to pieces or derange its machinery."

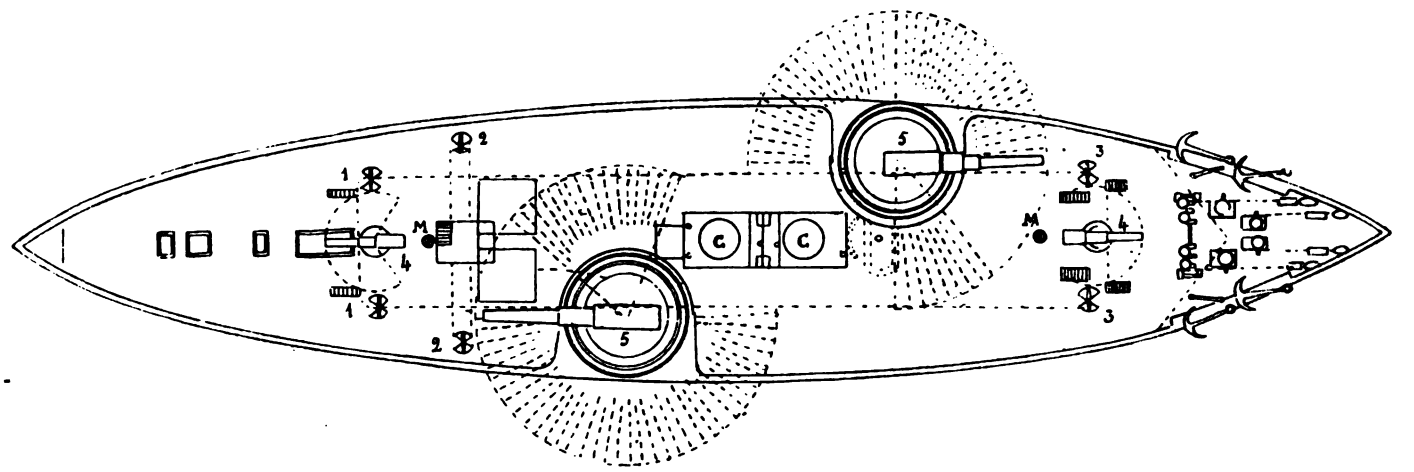
Another, when spoken to on the same subject, said he would rather "fight on the open deck, where the shot would do its work cleanly, than inside a half protected enclosure where every shot multiplied itself a hundred-fold in the shape of fragments and splinters. Better kill one or two outright than have fifty mangled best material and construction, and she is altogether as fine a representative of vessels of this sort as any afloat. In the same basin beside her lies the old double-turreted monitor *Miantonomali*, her opposite in almost every respect.

The following are the chief dimensions of the United States' twin-screw steamer, the *Chicago*:—

Length between perpendiculars . .	315 ft.
Length of water-line	325 ft.
Length over all	334 ft.
Depth—garboard strake to under-side of spar deck	34 ft. 9 in.
Height of gun-deck, port sill, from load water-line	10 ft.
Height of spar-deck, port side, from load water-line	18 ft. 6 in.

Breadth, extreme	48 ft. 2 in.
Draft of water at load-line, mean . .	19 ft.
Displacement	4,500 tons.
Complement of men	300.
Battery—four 8-in. long breech-loaders in half-turrets; eight 6-in. and two 5-in. on gun-deck.	
Indicated horse-power	5,000.
Sea speed	14 knots.
Capacity of coal-bunkers	940 tons.





PLAN OF FIRST-CLASS ARMOURCLAD, DESIGNED FOR THE UNITED STATES GOVERNMENT.
1, 1. 1·4 in. Machine Guns. 2, 2, Quick-firing Guns. 3, 3, Gatling Guns 4, 4, 8-in. Guns 5, 5, 12-in. Guns.
C, C, Smoke-stacks. M, M, Masts.

In pursuance of the plan for the reconstruction of their navy, the American Government recently appointed a Commission to report on the designs submitted by "all-comers." The competition was open to all nations, but only one design has been accepted, furnished by our own countrymen from Barrow, who have received £3,000 for their drawings. This belted cruiser, of 6,300 tons, which will be constructed at Brooklyn, will be the most powerful vessel in the United States' navy. The following are her principal dimensions:—

Length between perpendiculars, 287 ft. 4 in.; extreme length, 306 ft. 4in.; draft of water, 21 ft. 3 in.; displacement, 6,300 tons; with capacity of coal-bunkers, 600 tons. Her nominal horse-power is 5,800, working up to 8,600, and her speed is calculated at 17 knots. Her armament will consist of two 12-in. breech-loading guns, echeloned on deck, as in diagram, and six 6-in. breech-loaders, with twenty-two of small calibre—including machine-guns. As a weapon of defence this vessel is belted similarly to the *Lepanto* and *Duilio*—the armour protecting the engines, boilers, and coal-bunks. In thickness the plating is 11·7 in. An armoured bridge from end to end renders the ship unsinkable should the unprotected ends be seriously damaged by shot. The vessel is divided into many air-tight compartments, and, following the plan now generally adopted, the magazine is protected by the coal-bunks.

It is some consolation to reflect that although we are obliged to look to America for the lines of our pleasure-yachts, she accepts from us the design of her proposed most powerful vessel.

THE CIVIL EMPLOYMENT OF SOLDIERS.

By MAJOR C. J. BURGESS.

THE subject of providing civil employment for discharged and reserve soldiers must be one of interest to many classes. To the soldier himself; to the officer who intends making the army a profession and a living; to the officer who dreams of a peerage to be won through the support of the men placed under his command; to the officer who hopes to become an useful Member of Parliament; to the civilian employer of labour, skilled or unskilled; and, from the broader point of view, to the statesman, who, sooner or later, will have to deal with the question as one affecting the commonwealth. In offering the following remarks, arising out of a personal experience of the last two years in an earnest endeavour to promote a more extended and systematic employment of men who have honourably served in the ranks, the object is rather to open up a discussion in the interests of the men themselves, than to lay down any hard and fast rules. In order to do this with any reasonable expectation of useful results, we must look at the matter from two sides; one being the requirements of the service, the other the business requirements of the civilian employer; from the outside and the inside, so to speak, and so as to bring the army and the great mass of the people into a closer and more harmonious relationship than has hitherto obtained.

The army has for a long time lived in a small paradise of its own, in which "civilians" have been regarded as outer barbarians having no occupations, no tastes, no aspirations, in common with the superior beings who wear the national uniform. To help us to solve the great question—for if it is not already recognized as a great question, it must inevitably soon be so—we must begin by casting aside prejudice and sentiment, and by practically taking up the position necessary for a fair judgment upon any question between men of opposing interests, "Put yourself in his place." In the old days, before the ten years' service order robbed the army of the best men it held, there was practically only one class of soldier that would require civil employment, and that class was limited. There was, and still is, a sort of halo surrounding the pensioner; and justly so. For twenty-one long years he had upheld the honour of the Colours, and the public respected him. Moreover, the public is business-like; it felt that in the pension it had a security for continued good conduct.

To Captain Walter of the 8th Hussars belongs the credit of having utilized public sentiment to the advantage of both the pensioner and the public. The knighthood awarded for his successful organization of the Corps of Commissionaires is but a small thing. The consciousness of the fact that he has earned the gratitude of soldiers is reward that every officer may justly envy. I do not pretend to say that the organization of the Corps of Commissionaires is perfect. Possibly the soldier might suggest that he has to pay somewhat excessively for his connection with the corps, and out of proportion to the benefit he may have personally derived therefrom. Granted, for the sake of argument, that the soldier's view is the right one, the fact still remains that Sir Edward Walter has laid the foundation of a great principle, the details of which are capable of being varied and expanded according to the requirements of the day.

Times have changed; to-day we have not only the pensioner to deal with; we have also the time-expired man, and the reservist. The time-expired class is comparatively not numerous, and generally these men leave the service because they have something in view; at all events their leaving is a voluntary act. Besides, they are in the prime of life, neither worn out by long service, nor young and inexperienced.

There is one grand field open to these men and their wives—domestic service. The just complaints of the manners and customs of our domestics, and the growing yearning for what they call "freedom," are loud and deep. A decent, well-conducted man, able to valet and to wait at table, with a wife who is a cleanly, steady, fairly good all-round general servant, has the pick of service where the wage runs from £50 to £100 a year and all found. For gardeners, too, there are numerous inquiries by private employers, as well as by nurserymen, who have great difficulty in finding steady men who can be trusted to go out by the day to private gardens without discrediting their employers.

Before proceeding to consider *the* problem to be solved, let us turn for a moment to the senior service, the Royal Navy, and its modern adjunct the Royal Marines. As a rule a seamen or a marine without difficulty obtains civil employment on discharge. True, the sea is open to him. But it must be something more than that which causes him to be snapped up so readily by all sorts of employers. He is physically active, he is hardy, he is not so dependent upon orders for carrying out details, he uses his brains—all the result of his training in the navy. Go where you will, you find him useful and trusted. In New Zealand, South America, anywhere a Britisher settles in an out-of-the-way corner, you may find in him a capital servant, able to cook, look after a horse, build a hut, mend and make clothes, keep the

guns in order, cut your hair. "Where did you pick up this fellow?" "He 's an old marine," will be the reply.

Apart from the fact that marines and time-expired men are but a drop in the ocean as compared with the reservists annually thrown out of military employ, there is this, that the latter have not been long enough in the service to learn anything likely to be useful to a civilian employer. Taken from the streets at an early age before he has properly learned any trade or handicraft, the reservist is returned on the streets in a few years, friendless and helpless, having lost what little knowledge he may have previously had, and having gained just enough money to buy a glass of beer and a pipe of tobacco, and a confirmed habit of "loafing;" the only training he has received in the army being such as to render him incapable of thinking for himself, or of doing anything except what he is told for the moment. Set him to work, leave him for a minute, and on your return you will find him doing nothing—if you find him at all—for the odds are that directly your eye is off him he slopes off to the nearest beerhouse, or to hang about round the corner with some congenial loafers. You can do nothing with him. As a civilian he is useless. What has made him so? Short service. In a gang with other mere labourers, and always under the eye of a driver, he might, perhaps, work for a time; but here he is blocked out by an already overstocked labour market. He deserves all our sympathy. Willing to work, but not knowing how. Anxious to get work, but not knowing how to find it. Feeling that if he does by rare good fortune obtain employment, he may not come up to the mark of business requirements; and that even if he succeeds in this, a war scare may at any moment recall him to the Colours, and sentence him to begin all over again. Surely he is an object of the sincerest pity. What has made him so? Short service.

It seemed to me that if these men were obliged when with the Colours to spend a certain time every day in a technical, practical education in learning trades and handicrafts under competent civilian instructors, they would, on discharge to the reserve, be at least enabled to compete for a place above that of the mere labourer. They would, moreover, learn habits of self-reliance, if not of thrift. Such training might be distributed amongst the garrisons: at one, carpentering and joining; at another, cabinet-making; at a third, plumbing and glazing; at another, gardening; at another, driving; and so forth: whilst at the larger stations there might be a school for each particular line. At Aldershot, training schools for domestic service for men and women. As to the expense, I believe it should not be great. Why should not all barrack buildings, furniture, and fittings be made by soldiers, under competent civilian teaching? A reserve man coming straight from a workshop with a Government certificate of competency would be a very different man in the eye of the employer from a man whose only certificate is generally an odour of beer and 'baccy. I took the liberty of propounding this view to some high military officials. The reply was not encouraging: it was to the effect that the man's period of service with the Colours was so short that his whole time was required for military purposes. From the merely military point of view nothing can be urged against such argument. But ought not a broader view to be taken? Is not some consideration due to the man himself? Is not some consideration due to the larger question of the National welfare beyond that comprised in its military requirements? Is it not possible to so train a man as to make him at one and the same time a good soldier and an useful citizen? Possibly I shall be met with the old adage, "Jack of all trades, master of none." To this the reply is, we have only *half* copied the German system, as we have only half copied the German helmet. Our short-service man is neither flesh, nor fowl, nor good red herring. It is not his fault.

Could not a couple of hours a day be told off for teaching the soldier something useful against the time when he will have to earn his daily bread as a civilian? He would very soon come to regard the hours so spent as actually more pleasurable, and certainly more profitable, than in the public-house. And the more such men the army turned out, the more popular the service would become, for the civilian employer would give the preference to soldiers. Let the subject be earnestly taken up, and I cannot but believe that ere long there may be found some means of so training men whilst with the Colours, that, without detracting from their usefulness as soldiers, they may have a fair chance in the harder battle for life as civilians in an over-populated and under-educated country like England.

What are soldiers of the Line taught that is likely to be useful to them on discharge? A cavalry man learns to be a groom; an artilleryman can ride and drive; a hospital corps man can wait upon an invalid; but the unfortunate mass of our soldiers, the Line, learn nothing likely to make them good citizens. There is, now-a-days, a larger sprinkling than there ever was of a better class of men in the ranks. There have come to me for employment reserve men who can fluently speak and write foreign languages. Such men ought not to be driven to an outsider for employment. It is high time to commence putting them into the Government offices, to replace the costly gentlemen in the Civil Service. Suppose the reserve man were to see that emigration to distant lands, where the mere labourer is more valuable than the educated clerk, was his best line to take; what becomes then of your reserve?

C. J. Burgess.

A GLIMPSE OF A SPANISH GARRISON TOWN.

By ARTHUR M. HORWOOD.

ONE fine day during the reign of good Queen Anne the British fleet, having on board His Grace the Duke of Ormond, and 12,000 of our troops, brought up before the sea-washed town of Cadiz, and there was despatched on shore to the Governor of the town a communication the purport of which was a hope that His Excellency would declare himself against the French Prince who had ascended the Spanish throne, and furthermore advance the cause of King Charles the Austrian, who, by virtue of a former treaty among the Powers of Europe, claimed right of succession to the late King.

It is recorded that His Excellency the Governor, in reply, declined to fall in with these wishes of the English, in which decision he was joined by the Captain-General of Andalusia, with the result that our countrymen forthwith waged war against the Dons, seizing upon Port St. Mary's and sacking it; but of Cadiz they failed to obtain possession.

When one calls to mind this episode in history, standing on the Muralla, or sea-wall, it really requires no great stretch of imagination to picture Admiral Shovell's fleet dropping anchor in the offing against the faint outline of Port St. Mary's, across the bay, so devoid of "signs of the times" are the surrounding features. The old, weather-stained embattlements, the pagoda-shaped sentry-boxes built in the wall, though now bricked up, and the long row, stretching right and left, of antiquated pieces of ordnance, painted a uniform grey, gun and carriage alike, all belong to a former age, and claim attention rather as relics of antiquity than as works of modern utility.

It must not, however, be concluded that these are the true defences of Cadiz. She has her modern artillery in the forts by the Perejil, though hidden from the sight of the casual observer, who might thus easily come away with a very poor impression of the defences of Spain in the nineteenth century.

Mistaken through he might be on this head, he would fall into no such error in declaring the whole city, at the present day, to be in a very deserted and forlorn condition. This is, unfortunately, the truth. Apart, and in addition to suffering in common with the rest of the country from the want of a firm Government and sound legislation, her commerce has of late years slowly but steadily decreased, until it forms but a moiety of its former proportions. This state of affairs is chiefly due to the decline of the sherry trade and to the loss of importance it has sustained as a depôt and market since the railway and the improved condition of the river Guadalquiver have placed Seville in direct communication with the outer world. The result is, there being no scope for energy or enterprise, the young blood seek "fresh fields and pastures new," and Cadiz has gone to sleep.

The streets, for the most part, present a deserted appearance; grass is cropping up between the stones, and the houses are silent. A volley of musketry might be discharged along the broad avenues of the Alameda at mid-day, without hurting a soul. Indeed, were it not for the military—cavalry, artillery, engineers, and infantry—who perambulate the town at all hours, and the itinerant vendors of water, oil, slippers, lottery-tickets, etc., it would appear the city was all but depopulated.

This is most noticeable during what we, in England, would call the busy hours of the day—from noon till dusk; but towards night a stir is visible. The principal squares become peopled, and the shop-keepers in the Calle Ancha retire from their posts of observation in the doorways to attend customers; the frequenters of the casinos and the patrons of the play emerge from their dwellings, darkly muffled in their cloaks, cigarette in mouth, and, for a time, the town is almost itself again.

The salient features of Cadiz do not appear to be numerous or strikingly interesting, according to that marvellous fund of general information on continental travel—Bradshaw's Guide. If priority of mention would determine their relative importance, it points to the club or casino as the principal institution of the place; next, in order of merit, comes the museum, but only to receive the condemnation of containing very poor pictures; the church (query cathedral?), it is true, is commended to the attention of the reader as being handsome; and mention is made, in the same breath, of the existence of a theatre. The sum total is completed by stating that a fine view is to be obtained from the signal station in the centre of the town, rising 172 feet high.

These items of attraction cannot, in themselves, appeal very powerfully to the mind of the tourist; but

whosoever may turn his footsteps in the direction of "The Silver Cup," as the town is fancifully styled, will find more to interest and please him than the terse and not particularly favourable description of the British Guide Book would indicate.

Imprimis, it is a goodly-sized fortified garrison town, built on a narrow tongue of land, projecting into the sea, and surrounded by salt water on three sides, from whence it presents the appearance of a veritable marble city, so white does it gleam, rising from the sapphire sea. A closer inspection, of course, dispels this illusion, but there is much that is charmingly picturesque to be seen within its walls. There is the Alameda or public promenade, with its groves of "Paradise" and palm trees, commanding a splendid view of the bay; the handsome squares of San Antonio and Mina; the marble-domed cathedral; the many finely-decorated churches; and the narrow white streets, dotted by Moors, in their picturesque garb, vending their different wares, and affording many a refreshing glimpse of palm-tree-decorated and marble-fountained patio; and if it does not abound in art collections and historic associations, it has, at least, the one merit of being fresh and natural, Spanish to the core, unblended by that leaven of sight-seers and curiosity-mongers that so frequently scare away any spice of romance a locality may possess. While another commendation—and that by no means a small one in Spain—is, that it is a remarkably clean, well-kept town, admirably drained, owing to being built high above the level of the sea; the mere fact of the sewers—channels cut in the solid rock foundation of the city and opening into the bay—being, in former times, extensively utilized by the smugglers in "running cargoes," is sufficient evidence of their capacity and dimensions.



THE BAND IN THE PLAZA DE MINA.

The principal amusement of the citizens is, of course, the bull-fight; gaming and the drama follow in order. The much-frequented casinos have reading-rooms supplied with periodicals and newspapers, but their bid for patronage has no chance against the superior attractions of the adjoining card-saloons. There, bending over the green baize-covered tables, under the gas shades, sit the black-visaged Dons, with their hats tilted over the ear, abstemious, perhaps with a glass of weak

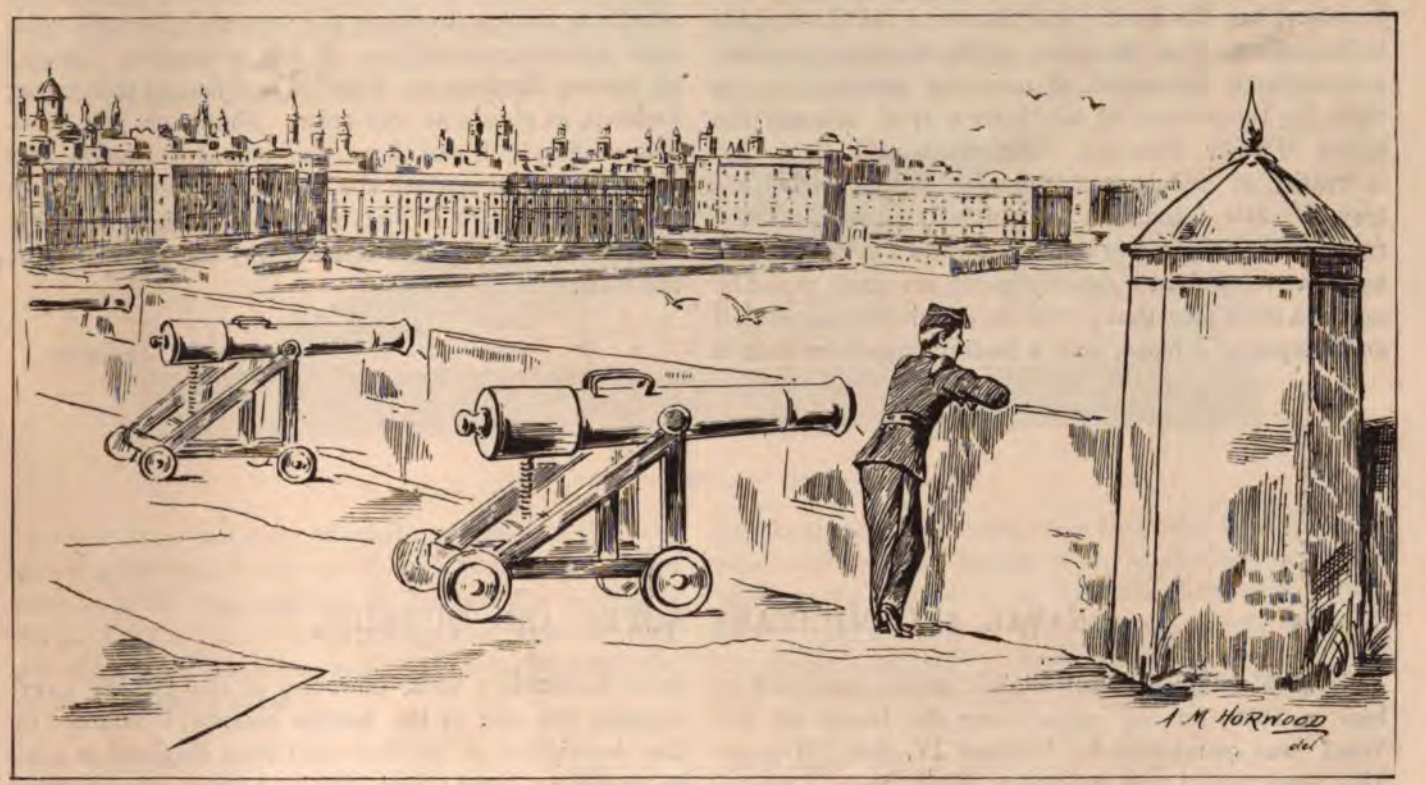
will, turn where you may, you cannot lose sight of them with their scarlet-clad, jerkin-like legs, and cross-hilted rapiers; singly, and in groups, they haunt every street and square, smoking, it is needless to say, and chatting and gesticulating with an energy that, bearing in mind the climatic influence of that part of the country, is very creditable to their powers of endurance.



THE BARRACKS.

The most favourable opportunity for studying the characteristics of the people is on a Sunday afternoon in the Plaza de Mina, when a military band attends

from one of the regiments in quarters and performs a selection of music, resulting in a musical promenade. Indeed it is the only occasion in the week that anything approaching a crowd is to be seen. Shortly before the time appointed, the blue-coated stumpy musicians arrive by twos and threes from the barracks in the Paseo de las Delicias, and gather noisily round the music-stands, like bees round a hive. The populace is already arriving in, what is for the place, goodly numbers; the adjacent confectioners' shops are crowded with shock-headed children and their indulgent parents, all declaiming at the top of their voices; the more humble purveyor of saccharine delicacies—the man with the basket—has also his share of patronage from the voluble *oi polloi*; "*Agua fresca!*" proclaims the water-seller in his lacrimose tones; "*Un ochavito!*" shrilly plead the knots of ragged mendicants, and above the babel of human voices is heard the hour striking from the church of San Francisco. Then the opening strains of the overture to Rossini's *Barber of Seville* rise from the centre of the quickly filling square, the chairs become tenanted, and the promenade commences. Don Basilio buttonholes Don Bartolo and holds him in deep converse; is it about calumny? Señorita Rosina is here enjoying the music and shooting killing glances from her dark eyes; she is in company with a new friend, a young lady who affects the extreme loudness of Parisian millinery. Our friend Don Almaviva regards them with critical eye. Salutations are exchanged between elderly Doñas; the heat, the weather is discussed, the saints are invoked, and on they pass. The sun blazes down on the teeming kaleidoscopic square, the bursts of music re-echo within its confines, occasionally supplemented by a sepulchral "boom" from the belfry of San Antonio, calling the more religious portion of the community, largely composed of ladies, to vespers, and thither along the narrow streets they wend their way, wielding huge black fans, that flutter their mantillas; and anon encountering a black-robed "padre," it is not unusual for a fair devotee to pause before him and salute him reverently by gracefully bending and kissing his pudgy hand.



ON THE MURALLA.

From the dazzling white sunlit streets, that promote weariness of eye-sight and pretty certain lassitude, a welcome refuge is the Cathedral, with its cool atmosphere and comparative darkness. Indeed, so dense is the gloom, that, on first entering, objects positively cannot be distinguished. It might well be taken for the vaults beneath. Specks of light, like dim glow-worms, stud the darkness and add to its impressiveness. These prove to be, a nearer inspection discloses, oil-lamps burning in the side chapels, illuminating them with a feeble, weird, yellow light. The visitor's footsteps re-echo, hollow and distinct, as he walks around; he passes a few dark figures on their knees before a shrine; he peers up at some tall altar-pieces and pictures of saints, and soon finds himself holding aside the grimy curtain over the doorway to permit his egress. Two

minutes after he has a very indistinct notion of wha the interior of the Cathedral is really like; he feels as though he had taken a dip--not into futurity—but into the dark ages gone by; and retains only a recollection that he has seen little and heard less.

An ancient institution of Spain, that has survived the ravages of time and conventionalism, is the Sereno, or night watchman, whose function is to chant aloud, at the street corners, the hour of night or early morning, supplemented by a meteorological intimation for the benefit of the housed and reposing populace, and, if (bearing in mind his more than mature years) he is equal to the occasion, to preserve order. This nocturnal songster has become the particular property of the romancer and the bard. His mournful refrain is made to intermingle with the twang of the serenader's guitar, and to startle the crouching midnight assassin lying in wait for the advent of his hirer's rival beneath the lattice of Doña Dulcinea. But, truth said, he is not in reality so redolent of romance as popularly portrayed. His intonation is generally nasal, and the range is limited to two notes. He wears a peaked cap, and is enveloped in a description of inverness cape; he carries a short pike, that serves the double purpose of staff and weapon of defence, with a lantern suspended from a hook thereon, and thus attired he totters along the streets, coughing and spitting, pausing ever and anon to emit his monotonous lament. Listen! he is advancing along the Calle Ancha, his cry distant and faint, but growing more distinct at every delivery. He has paused at the top of the Calle Veronica, and in the still night air he gives out in his quavering voice, that rises sonorously between the high houses of the narrow thoroughfare: "*Las doce en punto y sereno!*" It is midnight, and all is calm and peaceful over the sleeping city. The next time he halts is about a hundred yards nearer; he has got as far in his song as "*Las doce en punto* ——" when a party of roysterers, issuing from a wine-shop, jubilant and boisterous, irreverently join in the refrain as chorus, drowning the venerable Sereno's voice with screaming imitations of his intonation. Alack! all dreamy illusions are dispelled and flee, at this vulgar incident, as ghosts at cock-crow. Shame on you, bibulous scoffers! I can hear the outraged Sereno still protesting aloud against the shameless insult offered to his cloth, as, with a swaying gleam of light from his lantern, he slowly passes beneath my window and turns the corner.

ARTHUR M. HORWOOD.

NAVAL AND MILITARY NOTES AND QUERIES.

NAVAL MEDAL.—Admiral Blake's medal, conferred on him in 1653, for the victory over the Dutch off the Texel, was purchased by William IV. for 150 guns. The Texel medal was granted to Monk, Penn, Lawson, and all the officers and men of the fleet engaged, and was the first ever granted by England to all the combatants.

THE NAVY IN THE TWELFTH CENTURY.—The reign of Richard the "Lion-hearted," forms the first great epoch in the naval history of England. Ships of a much larger size than before, and of various conditions, were then constructed; voyages were performed to the Mediterranean; codes of marine laws were established, and a British armament made conquests in distant seas. The navy at that time consisted chiefly, if not entirely of large galleys, small and light galleys for war, and "busses," which were large ships of burden, with a bluff bow and bulging sides, chiefly used for the conveyance of troops, stores, provisions, and merchandize. The most satisfactory idea, however, of the British navy, towards the end of the twelfth century, is afforded by the description of the fleet sent from England in 1189 to the Holy Land; and which, having missed King Richard at Marseilles, followed him to Messina. The King, according to Richard of Devizes, the only writer who has entered into details on the subject, found at Messina one hundred sail and fourteen busses, "vessels of great capacity, very strongly and compactly built." The principal had three spare rudders, thirteen anchors, thirty oars, two sails, three sets of all kinds of ropes, and duplicates of everything else which a vessel could require except the mast and boat. Each vessel had a skilful commander, and a crew of fourteen sailors, and carried forty war-horses with their armour, the same number of foot-soldiers, and provisions and stores of all kinds for twelve months. As galleys were the principal vessels of war, more interest attaches to them than to mere transports.

R. O'BYRNE.

be heavier, they would last longer, and would form a very handy stand for camp-cooking (Fig. 3). A small plate, with a number of short chains attached, is the only extra mechanism required for twenty-four men.

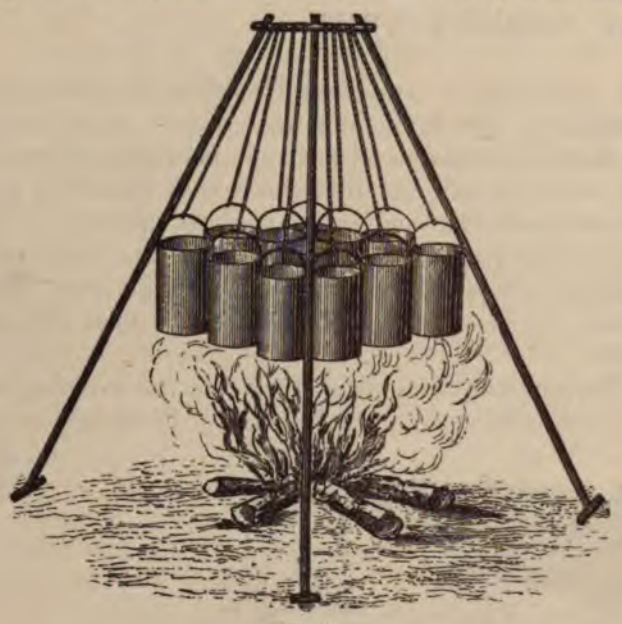


Fig. 3.

The pegs should not be made in the ordinary wooden form. An iron cylinder should be divided lengthways into two equal parts and the upper end of each bent slightly outwards (Figs. 4 and 5). Pegs made in this

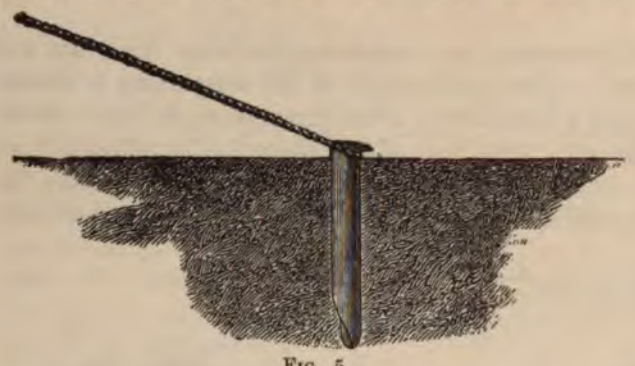


Fig. 5.

way offer an extraordinary resistance to the tension of the rope. For transport they may be placed one within the other and strung together.

In order that the rain may not penetrate between any two parts of the screen, the joins should be made as shown in Fig. 6. The screens occupy in transport a minimum of space, as they may be packed in the baggage-waggon flat upon one another. It has been



Fig. 4.

found that eighteen parts, weighing in all 3½ cwt., would be sufficient in the field for 250 men.

Fig. 7 shows a new form of shelter which may be used as an officer's tent by night, and as a covering for



Fig. 6.

his second horse during the day. The tent, when spread flat upon the ground, may be doubled up to form a neat waterproof horse-cloth ; and may be erected as a shelter in from three to five minutes.

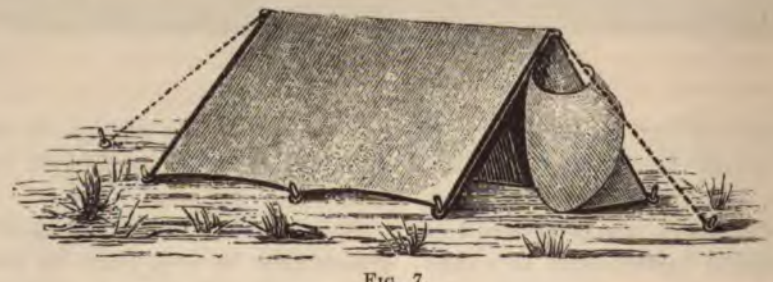


Fig. 7.

REVIEWS.

John Bull's Army, from a French Point of View. By Hector France. (Whittaker & Co.)

That we should see ourselves as others see us, at all times desirable, is pre-eminently important as regards military affairs; to live in a fool's paradise in the matter of our national defences is madness and insensate folly. Captain France's work, therefore, on "John Bull's Army," is in every way welcome. Its author is a calm, clear, unimpassioned critic, who weighs carefully all the goods and the bads of the English Army. Of course, at times he falls into error, as, for instance, when he sneers at the Marines as an inferior corps, a mere kind of nautical police, instead of proclaiming them as the finest fighters in the British Army—a body of men who have done more to uphold the dignity and honour of old England than perhaps any regiment that ever took the field. Captain France, too, is in error in supposing that the cavalry officers of the Guards are generally members of the Carlton and Conservative clubs. These latter are purely political institutions, and, as such, have no connection with the military, except in so far as that most high-class and well-bred gentlemen are perhaps averse to the principles of Socialism and "levelling," which guide at least some of the so-called Liberal party, and accordingly, in their private capacity, enrol themselves amongst the number of those who are supporters of "Queen and Country."

Captain France sees a great deal in the British Army of which he highly approves, and more which he does not condemn, while in not a few cases he feels compelled to express disapproval of what seems to him indefensible, alike in practice and in principle. In the first category he includes the salutary custom of upholding the authority and dignity of the non-commissioned officers as, he rightly says, the backbone of the Army: the custom, on the part of officers, of extending help in times of sickness and trouble to the men under their orders, the loyalty of the service, the high pay of the officers and the good food of the men, the canteen system, athletic sports, etc. etc. In all these cases the contrast between England and France is heavily to the detriment of the latter. In the second line he places religion, which he seems to regard as a sort of mixture of folly and hypocrisy; marriage, which he appears to consider as an arrangement so productive of evil, from a military point of view, that the men ought to be compelled to be prudent, despite all the allurements of the nursemaids and the enticements of the cooks; but, seeing the difficulties and danger of any prohibitive regulations against the Biblical injunction to "be fruitful and multiply and replenish the earth," Captain France contents himself with a shrug of the shoulder, and a laugh at the stupidity of Tommy Atkins in the matter of domesticity.

As regards the blots in our system, he deems it wise to have abolished "purchase," but he apparently disregards the circumstance that the action in this direction brought the country face to face with the difficulty how to regulate promotion, and necessitated the adoption of a plan of forced retirements, which he loudly condemns and severely criticizes. Will our future hero tell the world how a plan of promotion is to be kept up now that you exclude from the army men who, as a rule, did not want to remain soldiers all their life, and whose retirement made way for other officers, to whom the profession of arms was a "thing of beauty and a joy for ever"? Captain France is hard on the lash, and on linked battalions; he looks upon the Militia and Volunteers with contempt; and he sums up his conclusions in terms most fatal to the welfare of this country, which, "with her defective military organization, her decaying navy, and her internal embarrassments, could only pursue one line of conduct—that of obliteration."

This is plain speaking, and if we think this foreign critic is mistaken, it is not because we are blind to the faults and follies in our midst, but because we do not see that he takes any account of that national doggedness which in the past has pulled the country through many a danger, and many a difficulty, and in the future may cause an intruder to pause, and an attacker to hesitate. But we like the book, and we respect its author, confident that his criticisms are in the main sound, and his fault-findings free from malevolence.

Studies in Naval History. By J K. Laughton. (Longmans, Green & Co.)

Deeds of bravery and daring are the heritage of the navy of well nigh every nation, customary though it be to consider them the sole prerogative of Britain alone to the exclusion of all her rivals on the great waters. A perusal of Mr. Laughton's most interesting volume will serve to dispel not a few illusions as to England's monopoly of bravery; there is enough and to spare of heroism and stupendous courage. French, Austrian, Dutch, each and all stand forth prominent in the pages of honourable mention; but it is rather to the defencelessness of our coast towns that we desire to draw attention. Optimist confidence dies hard, but let it be remembered that in 1375, Jean de Vienne, crossing the Channel, landed at Rye, which he occupied after a few hours' fighting. At Winchelsea he was repelled with heavy loss; but at Rottingdean he was more successful. Nor was this all; Lewes, an inland town, was burnt. Folkestone was sacked and destroyed by fire. Portsmouth, Dartmouth and Plymouth were reduced to ashes. The Isle of Wight, too, was placed under a heavy contribution. Poole was burnt, and a like fate befel Hastings. What a catalogue of disasters at the hands of a solitary commander, albeit at the head of a very considerable fleet.

But to come to later times; Thurot, about a century ago, ranged the English coasts, captured ship after ship to an extent as almost entirely to stop the North Sea trade; and it was by the merest chance that Liverpool, even then a rising emporium of commerce, was not made a heap of ruins—the weather fought for old England.

Later still, in the eighteenth century, a naturalized American, by name Paul Jones, harassed the Scotch

and Irish coasts, entered harbours, attacked shipping, and practically swept the seas—and this is in our own waters!

This is sad and humiliating, but it should be instructive. To quote the solemn warning of Mr. Laughton: "Many of our seaports, with shipping and warehouses far more valuable than any of 100 years ago, are still as utterly defenceless, nay, more so, for the offensive powers of an enemy are increased enormously. Shoals and sandbanks will not stop a commander of skill and determination; even if every Englishman or Scotchman was of approved honesty; if there was none ready to sell his birthright for a mess of pottage, there are hundreds of Americans, Germans, Frenchmen, Russians, who know the way into the Forth or the Tyne, the Clyde or the Mersey, just as well as do local pilots. French pamphleteers have, within the last few years, revelled in the anticipation of mischief that might be done to our undefended towns with a minimum of cost or risk," etc.

This is plain speaking, and it may be trusted that someone in high place will read this warning, and rouse the nation to a sense of its danger. But it is difficult—the sleep of apathy is sound and deep, and we feel it needs more than even Mr. Laughton's most valuable and opportune work to arouse public attention to this all-important subject—perchance, the dream of security will not be over till a national disaster thunders forth denunciations into the heavy ears of a heavy and listless people, who "love to have it so."

The Elements of Minor Tactics. For the use of Volunteers. By Capt. C. J. Blomfield. (Gale & Polden, Chatham.)

A quarter of a century ago the Volunteers were considered as mere national toys, or military playthings. Now they are reckoned a line of defence in case of invasion, should the necessity of the Empire require the presence of the regulars elsewhere. But to render amateurs trustworthy in the field of battle, they must, of course, be trained with care, and instruction provided for the mind as well as drill for the body. Captain Blomfield's brochure is a step in this direction, explaining in clear and simple language the elements of minor tactics. Reading will, of course, never make a man a soldier; but obviously the first step is to know what to do—this the gallant Captain's work fitly teaches—it only remains for readers to carry into practice the lessons which he has prepared.

SUMMARY OF ARTICLES IN FOREIGN SERVICE MAGAZINES.

Revue du Cercle Militaire—Armées de Terre et de Mer. (Paris: 37, Rue de la Bellechasse.)

The Use of the Camel in Mounting Infantry—Marshal Macdonald (*conclusion*)—The Reorganization of the Gendarmerie—Krupp and the Essen Works—Notes on Repeating Firearms—The Torpedo-boats of the Italian Navy—The Manœuvres of the 8th German Corps d'Armée.

Revue de Cavalerie. (Paris: Librairie Militaire, Berger Levrault et Cie., 5, Rue des Beaux Arts.)

The Cavalry in Mobilization—The German Cavalry (*continuation*)—Historical Records of French Cavalry Regiments—The Cavalry School of Autun.

Revue Maritime et Coloniale. (Paris: Librairie Militaire de L. Baudoin et Cie, 30, Rue et Passage Dauphine.)

Historical Studies of the French Navy (*continuation*)—Combined Land and Sea Operations (*continuation*)—Travels in Senegambia (by Dr. Bayol, Lieut.-Governor of Senegal) (*continuation*)—Two Years in Tonkin.

Revue Militaire de l'Étranger. (Paris: L. Baudoin et Cie., 30, Rue et Passage Dauphine.)

The German Infantry Division of 18 Battalions—The Invasions of India (*continuation*)—The Chinese Troops and Fortifications in Eastern Turkestan—The Field Regulation of 23rd May 1887, for the German Army (*continuation*)—The Organization of the Italian Army.

Journal de la Marine. Le Yacht. (Paris: 50, Rue Saint Lazare.)

The (French) Navy and Colonies—A New System of Towing—Launch of the Torpedo-boat No. 71 at Cherbourg.

Journal des Sciences Militaires. Revue Militaire Française. (Paris: L. Baudoin et Cie., 30, Rue et Passage Dauphine.)

Notes on the Cavalry Manœuvres at Châlons in 1886, by General L'Hotte—The Officer and the Superior Cadres (*continuation*)—Marching in Mountainous Country—The Engineers and the Three Years' Service—The Use of Mules for Mounting Infantry in Southern Algeria—The French Army and Navy before the Revolution (*continuation*)—Army Transport (*continuation*).

Neue Militaerische Blaetter. (Potsdam: Villa Schwanenbrücke, Post: Klein Glienicke.)

The Armies of the Balkans—Cavalry Sketches—The Action at Weissenburg—Notes on Cavalry Attacks in the Campaign of 1870—Russia's Position on the Black Sea, IV.

Internationale Revue ueber die Gesammten Armeen und Flotten. (Cassel: Verlag von Theodor Fischer.)

Europe in the Immediate Future—Armourclads and Protected Cruisers—The Cavalry of the European Powers—Has the French Army improved?—Aphorisms on the Scandinavian Military Systems.

improve. The main piece is followed by one of Mr. Corney Grain's happiest efforts, a new sketch, called "So Quiet." The subject exactly suits him, and although in a succession of such monologues a certain amount of sameness is almost inevitable, Mr. Grain contrives to put much that is fresh into each of his sketches. The old fogey's complaint of the slang of the day "I don't understand what they say" is specially good, with its imitation of the old Christy Minstrel style, and its chorus with the different voices introduced. This feat inevitably suggests comparisons with John Parry, but we do not remember his mingling more than two voices, the soprano and baritone in a duet. There are some very happy hits, too, in Mr. Grain's Nursery Rhymes for the children of smart people, and altogether he may be congratulated on a decided success.

The opening of TERRY'S has added yet another theatre to the Strand, and a very pretty—though very small—theatre it is. The colouring in brown-pink and apple-green, relieved but not over-done with gold, is particularly effective, and the precautions against fire are enough to reassure the most apprehensive spectator. Exits appear on all sides, a fire-proof curtain descends between each scene, gas and electric light are both used and we are told of sprinklers and hydrants, of fire-proof paint and various other safe-guards. The lessee and the Architect, Mr. W. Emden, are equally to be congratulated on a step in the right direction.

"The Churchwarden," in which Mr. Terry is already well-known, has been revived for the opening and goes as briskly as ever; it is impossible not to laugh at the unhappy Mr. Chuffy, though one sometimes feels provoked with oneself for laughing, and the rest of the cast is a very even and efficient one. Mr. Lionel Brough especially shows himself a thorough artist by the quiet and unforced humour he puts into the part of Mr. Bearder, and Miss Clara Cowper, who reminds one by-the-bye continually of Mrs. Bernard Beere, throws much more individuality and humour into her part than one often sees in the young lady of the piece. Miss Victor's Mrs. Chuffy is also an unexaggerated bit of acting.

The novelty of the evening was a farce on the old-fashioned lines (though dignified by the name of a comedietta) called "Meddle and Muddle," in which Mr. Lionel Brough labours hard to make something out of nothing. One would hardly have thought that it required two gentlemen to construct this piece, but division of labour is the order of the day and as the "Churchwarden" requires four authors (including the original German producer) to construct it, no doubt two is the proper number for a *lever de rideau*. Jokes made on names which are invented by the play-wright are a cheap form of wit, but when Major Muddle, in glorifying his military ancestors, says that "there has not been a campaign for years without a Muddle in it," the laughter is not altogether undeserved.

The AVENUE re-opened at the end of October with a Comic Opera, called "The Old Guard," but we must postpone the notice of this till next month.

Pieces that have been running for some time.

ADELPHI.—"The Bells of Haslemere," melodrama, Mr. W. Terriss, Mr. Cartright, Mr. Beveridge, Miss Millward, Miss Clara Jecks, Miss Annie Irish, &c.; and a farce.

COMEDY.—"The Barrister," three-act farce, Mr. Fred Marvin, Mr. Walter Everard, Mr. J. H. Darnley, Miss H. Layton, Miss Susie Vaughan, &c.; and "The First Night," Mr. Frank Wyatt.

CRITERION.—"Our Boys," comedy, Mr. David James, Mr. G. Giddens, Miss Rose Saker, Miss E. Vining, &c.; and "The Cuckoo," Mr. Blakeley.

DRURY LANE.—"Pleasure," melodrama, Mr. Harry Nicholls, Mr. Edward Gardiner, Miss Alma Murray, Miss Fanny Brough, &c.

GLOBE.—"The Doctor," farcical comedy, Mr. W. S. Penley, Mr. H. Kemble, Miss Vane Featherston, Miss Gladys Homfrey, Miss Fanny Enson, &c.; and "Lady Fortune," Miss Cissy Grahame.

HAYMARKET.—"The Red Lamp," drama, Mr. Beerbohm Tree, Mr. Brookfield, Mr. Allan, Mr. Sugden, Mr. Pateman, Miss Marion Terry, Mrs. Beerbohm Tree, Miss Filippi, &c.; and "The Ballad-Monger," Mr. Beerbohm Tree, Mr. Brookfield, Mr. Stewart Dawson, Miss Marion Terry, &c.

LYCEUM.—"The Winter's Tale," Mr. Forbes Robertson, Mr. Macklin, Mr. Fuller Mellish, Mr. Charles Collette, Miss Mary Anderson, Miss Sophie Eyre, &c.; and "Cool as a Cucumber," Mr. Charles Collette.

OLYMPIC.—"The Pointsman," melodrama, Mr. J. G. Grahame, Mr. J. P. Burnett, Mr. E. S. Willard, Miss Maud Milton, Miss Agnes Hewitt, &c.; and a farce.

OPERA COMIQUE.—"Fun on the Bristol," musical farce, Mr. John Sheridan; and "As in a Glass," Mr. Charles Lauri, Jun.

PRINCE OF WALES'.—"Dorothy," comic opera, Mr. Ben Davies, Mr. Arthur Williams, Mr. Hayden Coffin, Miss Marie Tempest, Miss Grace Huntley, &c.; and "Jubilation."

PRINCESS'.—"Shadows of a Great City," melodrama, Mr. J. H. Barnes, Mr. H. Parker, Mr. J. L. Shine, Miss M. Rorke, Miss Cicely Richards, &c.; and "My Jack."

SAVOY.—"Ruddigore," comic opera, Mr. G. Grossmith, Mr. R. Barrington, Mr. R. Temple, Mr. D. Lely, Miss G. Ulmar, Miss Jessie Bond, Miss R. Brandram, &c.; and "The Carp."

STRAND.—"The Sultan of Mocha," comic opera, Mr. H. Bracy, Mr. C. Danby, Mr. Ernest Birch, Miss Violet Cameron, Miss M. Shirley, &c.; and "A Merry Meeting."

TOOLE'S.—"Dandy Dick," farcical comedy, Mr. J. Clayton, Mr. Alfred Bishop, Mr. H. Eversfield, Mr. F. Kerr, Mr. Denny, Miss Laura Linden, Mrs. John Wood, &c.; and "Woman's Wrongs," Miss Cudmore, Miss Roche.

VAUDEVILLE.—"Sophia," comedy, Mr. Thorne, Mr. Leonard Boyne, Miss Kate Rorke, Miss Larkin, Miss Rose Leclerc, Miss Lottie Venne.

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CAPTAIN THE RIGHT HON. LORD CHARLES WILLIAM DELAPOER BERESFORD, R.N.
COLONEL SIR WATKIN WILLIAMS-WYNN, Bart.
SIR JOHN MARCUS STEWART, Bart.
CAPTAIN THE HON. JAMES TERENCE FITZMAURICE, R.N.
CAPTAIN HUGH R. STEWART, R.N.
CAPTAIN HENRY BERKELEY, R.N.

AGENTS ABROAD.

FRANCE	Hachette & Co. / Galignani.
GERMANY	Trübner & Co.
ITALY	Dulau & Co.
AMERICA	The International News Company.
CANADA	Canadian Subscription Company. / The International News Company.
INDIA	Calcutta: Thacker, Spink & Co. / Bombay: Thacker & Co. (Limited).
AUSTRALIA . . .	Gordon & Gotch.

London: W. H. ALLEN & CO., 13 WATERLOO PLACE, S.W

the Earls of Shannon and O'Neill. Several of these noblemen, however, were the original knights, subsequently advanced in the Peerage.

Meantime, on the 2nd May 1783, the completion of the establishment of the Order had been celebrated by a grand procession of the Vice-regal officials, and the members of the Order, etc., which latter, having proceeded from its chapel to the Castle of Dublin—the insignia of the Grand Master being borne on a blue velvet cushion—the Commission of the King was read before the Secretary of State, by Sir W. Hawkins, "Ulster" King of Arms, and the proceedings terminated with the investiture of the officers of the Order.

The first appointed Prelate was the M. R. Sir Richard Robinson, bart., Archbishop of Armagh, and the first Chancellor, the M. R. Robert Fowler, Archbishop of Dublin.

Since that period the Statutes do not appear to have been subject to any important modifications, beyond those affecting the appointment of Princes of the Blood Royal and others.

The insignia consists of the following:—

The *Badge*.—Oval, enameled gold; within a border of (separate) shamrock leaves, *proper*—a blue fillet inscribed in golden letters, "*Quis Separabit*," with the date, "MDCCLXXXIII," and, encircling the Cross of St. Patrick (argent, a saltire gules), a shamrock leaf (*en surtout*) slipped, each leaflet being charged with an Imperial Crown (ppr.)—the whole surmounted by a harp, attached to the Imperial Crown which forms the central link of the Collar.

Collar.—Gold enameled, composed of alternate triple knots, harps, and heraldic roses, the latter, alternately, with white petals within red, and red within white. The centre link of the Collar has the form of an Imperial Crown.

Star.—Within four greater and four lesser principal silver rays, a circular azure fillet, inscribed with the motto and date (as before) encircling the saltire and shamrock, as in the Badge.

The *Habit* consists of a mantle and hood, of azure satin, with white silk lining; surcoat, doublet, and trunk hose of white satin; white stockings and boots—the latter with azure tops. The *Ribbon* is azure; and the festival of the Order is held on St. Patrick's Day. The sword has a crimson-velvet scabbard.

Of the officers, the Chancellor wears the same mantle, and, like the knights, encircles his armorial with the Collar. His badge is of a nearly square form, representing a *purse*, charged with saltire *gules* on a field *argent*, encircled with shamrocks. The *Registrar* has a similar but shorter mantle, and his gold badge, shaped like a book, is charged with the same arms and shamrocks as the previous. The Secretary and Genealogist each have a mantle like the Registrar's, and surcoat of white silk, and the same badge as the knights', but without the golden circlet and motto. The Usher of the Black Rod has a crimson satin mantle; his badge is a golden harp on an azure field, encircled with the motto; while the King of Arms (Ulster), now described as "Attendant on the Order," has the same habit as the Usher of the Black Rod, and a golden badge enameled *argent*, charged with a saltire *gules*, impaled with the Arms of Ireland, and encircled with the motto.

The stalls of the knights with their banners, etc., may be seen in the Cathedral of St. Patrick, Dublin.

The Order is now (exclusive of the Sovereign and Grand Master) composed of the following Noble Knights (and officers):—

The M. R the Prelate, Archbishop of Armagh.
Registrar, Dean of St. Patrick's.
Secretary, G. W. Lambart, Esq.
Usher Black Rod, Colonel J. Caulfield.
Ulster King of Arms, Sir J. Bernard Burke, C.B.
Dublin Herald, Sheffield Betham, Esq.
Athlone Pursuivant, Bernard Burke, Esq.

The Earl of Dartrey, Earl of Granard, Earl of Cork and Orrery, Earl of Dufferin, Earl of Charlemont, Marquis of Drogheda, Marquis of Waterford, Earl of Gosford, Viscount Powerscourt, Earl of Kenmare, Earl of Listowel, Earl of Dunraven, Earl of Carysfort, Duke of Manchester, Earl of Portarlington,, Lord Carlingford, Earl of Howth, Lord Monteagle, Lord Annaly, Viscount Wolseley, Marquis of Headfort.

THE PNEUMATIC DYNAMITE TORPEDO GUN.

By COLONEL S. RIVETT-CARNAC, Late 11th P. A. O. Hussars.

"COINCIDENT with advances in the arts of civilization, we find rapid advances in the arts of destruction. Advances made in the strength and armour of the hulls of ships of war are met by using more powerful guns, and resorting to the explosives carried in submerged torpedoes, movable or stationary. Neither the attack nor the defence are long permitted to retain a marked superiority."

The above words formed the opening of an address delivered at New York, on the subject of the latest instrument of destruction, the Dynamite Gun, by Lieutenant E. L. Zalinski, of the United States Artillery, the patentee.

It was under the personal guidance of this distinguished artillerist that I, during a recent trip to America, had the opportunity and privilege of inspecting and minutely examining the so-called gun, which, in the opinion of many in the United States, is destined in the near future to revolutionize modern warfare; whether this is to be the case or not I do not pretend to say.

I would here mention that in an able article on the subject of the use of high explosives in warfare, published in this magazine in December 1886, just one year ago, the Torpedo Gun is mentioned and partly described. I now propose to discuss the machine more fully; to set forth its powers, real or supposed, and to describe recent experiments and trials of the highest importance, the outcome of a year's hard labour and scientific research, which seem to establish the value of the weapon for future warfare. My description will entail some slight repetitions, which are, however, necessary for the better understanding by those of my readers unprovided with last December's number of this publication.

I wish it to be understood that I am not an expert in modern artillery, and, therefore, desire beforehand to be pardoned for any shortcomings and professional errors that may be found in my description; errors which I hope to avoid, however, by adhering as nearly as possible to Lieutenant Zalinski's own words.

The problem of projecting high explosives from guns charged with powder, has, since their invention, occupied the fertile brains of the most prominent engineer and artillery authorities, and have been ably discussed in the article above alluded to. Good results, indeed, were obtained by the Graydon shell both in America and Russia last year, when a shell weighing 102 lbs., filled with dynamite, was fired with a charge of 37 lbs. of gunpowder mixed with 1 lb. of dynamite, with a muzzle velocity of 1,993 feet per second. But the success of these experiments generally has been but partial and attended occasionally with results fatal to those conducting them. The new invention, the Pneumatic Gun, meets the difficulty by using, as its name implies, compressed air in the place of gunpowder.

The first gun of the series was the invention of Mr. Mefford, of Ohio, and was by him designed and constructed as long ago as the year 1883. It arrived in New York for trial in 1884, and was of 2-in. interior diameter and 28 feet long; the thickness of the metal used in the tube or barrel being $\frac{1}{4}$ of an inch. With a pressure of 500 lbs. to the square inch it threw a projectile 2,100 yards.

These results, although so far satisfactory and surprising, did not meet all requirements. Another gun on the same general principle, was constructed by Mr. G. F. Reynolds. This gun was intended for experimental purposes only. Its length was 40 feet, its interior diameter was 4 inches; the thickness of the tube being $\frac{3}{16}$ of an inch only.

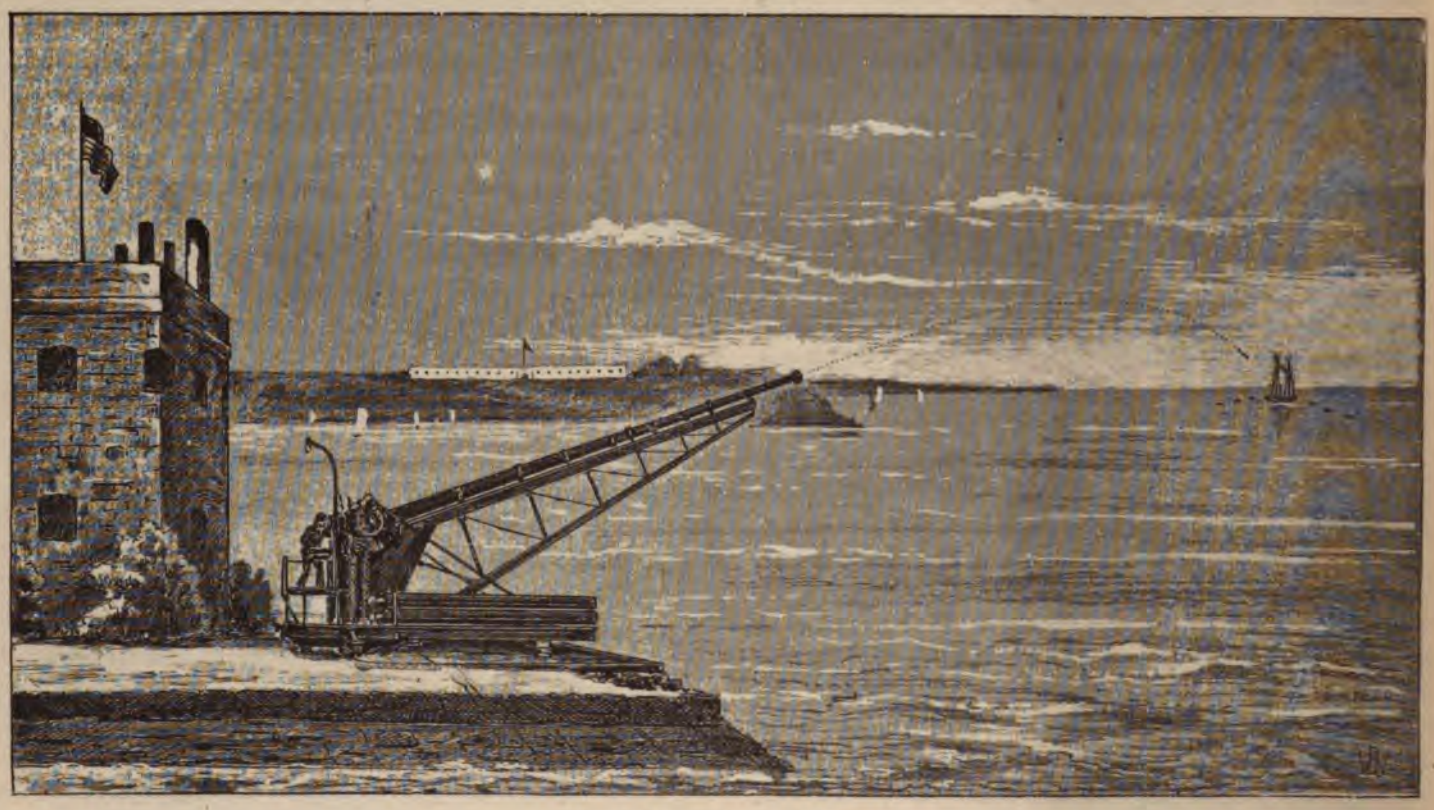
Experiments with projectiles of the same weight and centre of gravity obtained great uniformity of range, as was indeed anticipated, the air pressure being uniform and completely under control. Successive experiments with projectiles charged with dynamite contained in a very thin shell were highly successful, and it was practically proved that no air-cushion was necessary, and that the shell could be placed as close to the air-valve as mechanically convenient.

Further experiments proved that dynamite projectiles, with the percussion cap placed in front of the charge, failed to produce any marked effects when exploded on the sea-shore near Fort Hamilton, New York. The result of these experiments was the invention by Lieutenant Zalinski of a fuse, if I may so call it, which consists of a small electric battery with suitable circuit arrangement and electrical primers, capable of being enclosed in *rear* of the dynamite charge. The fuse is so regulated that the electric circuit can be closed when the shell arrives at $\frac{1}{8}$ of an inch distant from the target; 4·5 inches of armour-plate was broken through, and indented in a circular area of 18 inches in diameter, with a charge of 30 lbs. of the explosive, at 60 yards distance. At the same distance a blank shell penetrated 2·5 inches, and a shell charged with 30 lbs. of dynamite, exploded on

impact, that is, with the percussion cap in front of the charge, had *less* effect than the blank shell—the success of the fuse in rear of the charge was thus satisfactorily proved.

An 8-inch gun (the present development of the series) was next designed, and was constructed in its mechanical details by Mr. N. W. Pratt, mechanical engineer. As will be seen from the illustration, it is as unlike a gun, in the common acceptation of the term, as can well be imagined. I take the following description from a paper kindly presented to me by Lieutenant Zalinski, feeling that his own words will be more acceptable than any account of the mechanism of the gun from my pen.

"The 8-inch gun was mounted at Fort Lafayette (New York Harbour) in August 1885. The gun tube is made of four lengths of wrought-iron tubing $\frac{5}{8}$ of an inch thick, lined with $\frac{1}{8}$ of an inch seamless brass tubing. The barrel * is supported on a truss suitably braced. The breech is closed by a simple gate which opens inwards towards the side of the valve. The entire system of the gun barrel and truss are revolved around two trunnions projecting from the breech piece, which last is of cast iron. The trunnions rest in two hollow cast-iron uprights, resting upon the chassis. The chassis is a front pintle arrangement, resembling in general appearance the chassis of heavy guns. Two cylinders with suitable pistons, sheaves and wire rope, were attached to the chassis, the ends of the wire rope being attached to hooks in the platform. One cylinder operates the traversing sheaves by pulling the wire rope. The other cylinder acts upon a plate forming the rear end of the gun truss, by means of two links attached to the same, and elevates the gun. Both cylinders are operated by means of two levers which regulate the rapidity of action of the training mechanism. The sight rests in Vs attached to the left trunnion. The firing lever operating the valve is placed on the left side, in reach of the person sighting, so that the firing can be done without leaving the sight. A pressure gauge is placed so that the person sighting can readily see the pressure available, and thus, when needed, regulate the elevation. In short, the arrangement is such, that after the gun is loaded, the manipulation of it, including firing, is under the direct control of a single person, a desideratum in all artillery machines. The air reservoir consists of wrought-iron tubes of $12\frac{3}{4}$ inches exterior diameter and of a total capacity, including passages to the valve, of about 137 cubic feet. The tubes are supported on the chassis, four on each side, in two tiers. They enter, by means of connecting nipples, into the casting supporting the trunnions of the gun."



THE ZALINSKI GUN IN ACTION.

That the position of the firing reservoirs, containing the expense ammunition as it may be called, is faulty, is acknowledged by Lieutenant Zalinski, and in the gun of the future the reservoirs will be in a well under the

* It is 60 feet long.

gun. In the present gun the auxiliary air-reservoirs and pumping arrangements for keeping up a constant pressure of 2,000 lbs to the square inch, are situated within the walls of Fort Lafayette, in rear of the gun. The air pressure required for propelling a shell containing 100 lbs of explosive from the present machine is only 1,000 lbs. to the square inch, representing, I believe, about 600 lbs. of air; as the pressure used in the auxiliary reservoirs is double, a uniform pressure can always be maintained.

It must be remembered that the present gun is still in embryo; others are being constructed of 10½ and 12½ inch bore, hurling respectively 200 and 400 lbs. of explosive. The pneumatic gun has great advantages over gunpowder guns. In the latter the operator can never say how much of his charge ignites or how much is blown away unignited; consequently a given weight of projectile propelled by a given charge may reach the mark, or fall short by reason of faulty ignition. This cannot take place in an air-gun; the pressure can, by means of the gauge on the gun, be kept uniform, the charge is consequently constant, and every particle is used at each discharge. There is no fouling of the barrel because there is no ignition, so no cleaning is required after each round is fired. Firing is, by the way, quite a wrong term, for I am given to understand that the rush of compressed air expanding from the bore on discharge generates great *cold* and not heat. There is no smoke, the thin vapour caused by the discharge evaporates in a moment. The ammunition being air is always present; it simply requires to be collected and compressed by means of air pumps, and a shot striking any of the cylinders of the reservoir will cause no explosion, the pressed air will only escape with a loud whistle; this has been satisfactorily proved by experiment. The pressure of air on the barrel at the time of discharge is little or nothing, as is proved by the thinness of the metal used in the tube (¾ of an inch only, including the seamless brass tubing), as compared with the masses of metal used in gunpowder guns. There is absolutely no recoil, and the only friction on the tube is caused by the passage of the projectile. Lastly, the charge of air can be altered at will by a simple "cut off," and yet the same range attained by increasing the elevation. It is, I believe, very difficult to change the charge of gunpowder at a moment's notice, as it takes the form of a ready-made cartridge.



THE "SILLIMAN" AFTER THE SECOND SHOT.

Again, the explosive is not so dangerous to handle as gunpowder. It is true that were a shell to enter the magazine, the explosive gelatine (the article used) would explode with a greater force than gunpowder; but gunpowder would explode also under the same circumstances, and death and damage would ensue; but the gelatine can be lighted with a match. It will simply

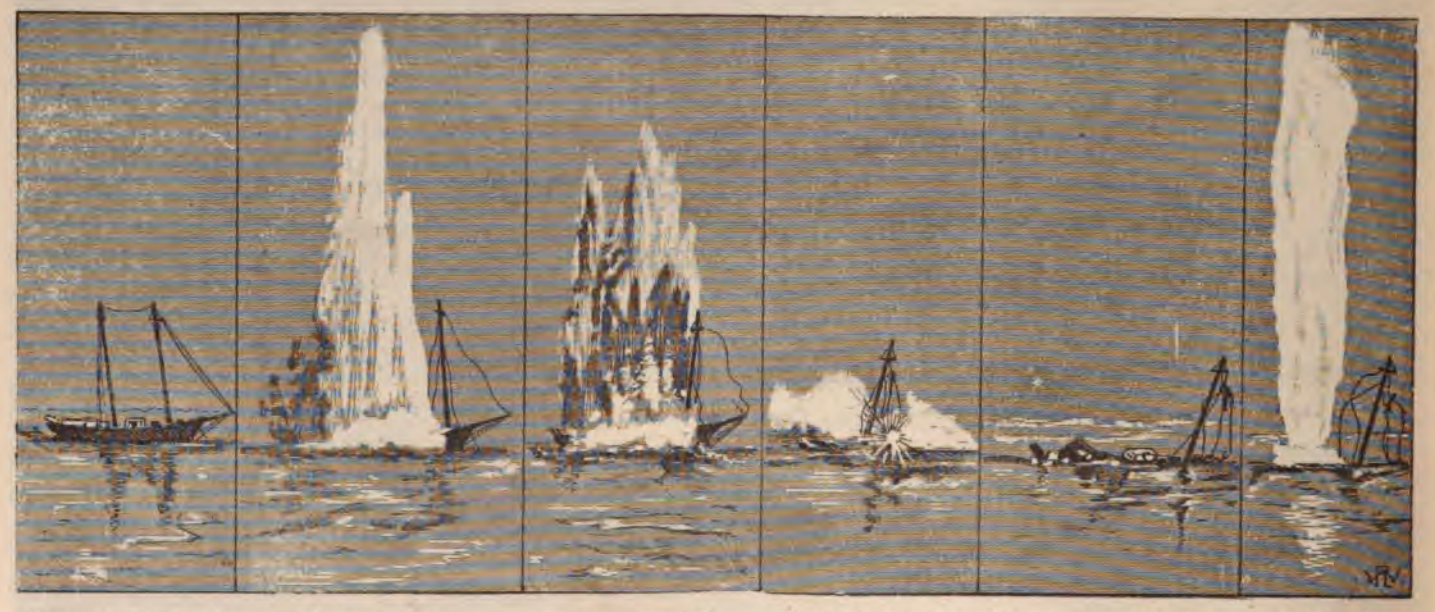
burn with a bright flame; it will not explode. I saw the experiment tried. A match cannot be applied to gunpowder without fatal results.

The latest form of projectile for the new gun is the invention of Colonel Hamilton, of the United States army. It is all metal. The shell forming the head is of very thin brass, and contains the explosive. It is furnished with a long tail, having spiral wings: it gives an excellent flight, and the electric fuse can be inserted at the last moment before the discharge.

The gun, which loads at the breech, requires no gun detachment, except the one operator before described, assisted by a couple of men, who insert the projectile into the tube. In this there is a great saving of men. It is very light, and consequently comparatively cheap.

In theory, a given pressure of air, propelling a given weight of projectile on a calm day out to sea, say, ought to attain the same range at each discharge; is it so in practice with the pneumatic gun? According to Lieutenant Zalinski's report, practically yes. A trial was made in June 1886, before an United States Naval Board. In 9 minutes 40 seconds, 5 rounds were fired with untrained men. An old form of projectile with a gas-check and wooden tail was used.* The range was 1613 yards only—not quite a mile; the elevation was 10° 40′, pressure 1,000 lbs. to the square inch, with the cut-off valve set to produce 50 lbs. loss. On this occasion the wind was variable. Four rounds attained *exactly* the same range, the fifth round went 7 yards only beyond the mark; but with the dynamite gun it is not necessary to actually hit the object aimed at; nor is there any scattering of death-dealing pieces of iron or lead; what is trusted to is the *concussion* transmitted on the bursting of the shell. The danger radius for 100 lbs. of the explosive is said to be 60 feet, that is to say, drop the shell within 60 feet of the object, and the desired result is attained. 100 lbs. of dynamite would, not sink an ironclad, but it would find out weak points, and if it actually struck would penetrate, according to experiment, 6·6 inches of armour. What the effect of the charge bursting over or on the deck would be, no one can say, but it is presumed that the concussion would at least knock the crew senseless and place them *hors-de-combat* for a time. Engineers, stokers, doctors, all would probably be included in the shock. If this conjecture be true, what, then, will be the effect of 200 and 400 lbs. of the explosive, hurled from the 10½ and 12½ inch guns?

EPISODES OF THE TRIAL.



The *Silliman* before the trial. | The first explosion. | The second explosion. | The third explosion in the air. | The wreck of the *Silliman* after the second shot. | The fourth explosion.

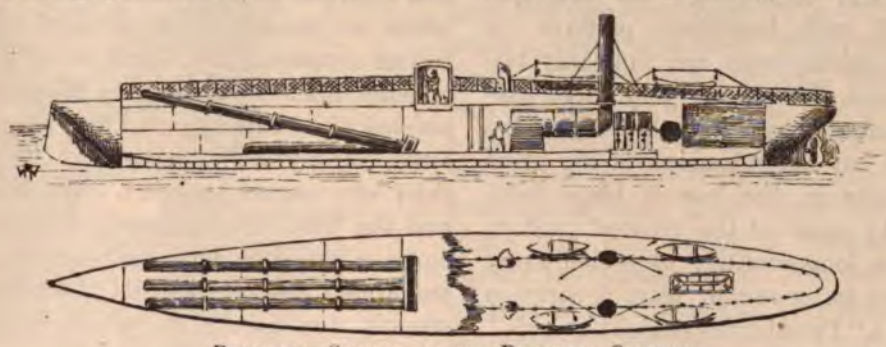
To illustrate that, it is not necessary to strike the object, witness the following trial, which took place on the 20th September 1887 at New York, in presence of a Naval Board and several foreign officers, including representatives of the British navy and artillery. Besides these gentlemen there were hundreds of spectators in steamers and on land, and, as usual, numerous press reporters—very critical observers. The target was an old schooner, the *Silliman*, placed at the disposal of Lieut. Zalinski by the Secretary for the Navy, who was himself present.

As I could not be present personally, I borrow the following facts from the New York daily papers, and from Lieut. Zalinski.

* Vide the rough sketch.

The *Silliman* was anchored out to sea, stern on to the gun, at 2,000 yards distance, the range being known. The Naval Board, in their steamer, took up position half a mile from the mark. Lieut. Zalinski fired two sighting shots with blank shells; both fell as intended, close to the schooner. The pressure used was 1,000 lbs. to the square inch; unfortunately I did not ascertain the elevation. The third round discharged was not intended to strike the mark, but to fall near it, the shell being charged with 55 lbs. of explosive gelatine; it fell a few yards from the object, as desired. An explosion ensued, raising a vast column of water, and the vessel had lost its mainmast and was found to be leaking badly astern. The shot was in excellent line with the two masts.

The fourth round (the same charge, pressure, and range) was placed immediately under the schooner, which was, from the effects of the third round, broadside on to the gun; when the column of water subsided, the schooner, as such, had disappeared; her *debris* covered the water for many yards, and her iron water-



PLAN AND SECTION OF THE DYNAMITE CRUISER.

tank having been blown from her hold, rested on the floating wreck. The foremast still appeared above water, standing in the sunken bows. An instantaneous photograph shows her lifted bodily out of the water by the explosion of the fourth shell.

A fifth round burst just above the wreck, close to the mast; and a sixth, this time charged with 100 lbs of the explosive, fell among the *debris* and completed the destruction. Thus, with two shells containing only 110 lbs. of explosive, the vessel, a small one certainly, was, at 2,000 yards, utterly destroyed, the operator having placed six successive shells (two of them blank) exactly where he intended.

The result of the various experiments and trials has been that the United States Government, a very practical body of gentlemen, have accepted the gun and have purchased from the Company owning the patent, two 10½-in. and one 12½-in. machines, and are building a fast cruiser calculated to steam at 20 knots an hour, to carry the new armament.

I think that I have said enough, and space admits of little more. In my humble opinion the weapon has a great future as a gun of position, especially for coast defence; for instance, in positions such as those occupied by the forts out at sea that guard Spithead and the entrance to Portsmouth harbour. Armed with these guns in their future perfection, Portsmouth would be practically impregnable; an enemy's ironclad passing a certain spot ought to be within the danger radius of every discharge, and the demoralizing effect of the explosive on the crew would probably be as terrible as the effects of the explosions themselves.

Imagine an ironclad armed with the new gun, even in its present embryo condition, throwing from 50 to 100 lbs. of dynamite 2,000 yards with the greatest accuracy, attacked by a torpedo flotilla: long before the boats with their deadly torpedoes could reach her, one or two rounds of 100 lbs. of dynamite would be exploded in their midst, under or over them; their thin steel fabric would be shattered, or their delicate machinery at least be put out of gear, and they would fall an easy prey to the armed boats of the sea monster! Again; the effect of dynamite shells hurled at the supports and reserves of a force attacking a fortress would be terrible, and is left to the imagination; other uses for the explosive will doubtless present themselves to the mind of the military reader.

The weak point of the gun at present is its want of range; the great accuracy above mentioned has been obtained at the comparatively short distance of 2,000 yards and under, but I understand that the larger guns of the future will have a range in proportion; this has yet to be proved by experiment.

The greatest distance attained by a projectile propelled from the present gun is 2¼ miles, with pressure of 1,000 lbs. to the square inch, an elevation of 35 deg., and a shell weighing 60 lbs. of explosive. One hundred pounds of explosive was hurled with the same pressure, and 33 deg. of elevation, 3,000 yards. According to the *Scientific American*, a New York weekly journal, the velocity of the shell is only 600 ft. per second, or about one third of that attained by projectiles fired from gunpowder guns.

Whether compressed air is to replace gunpowder, and explosive gelatine chilled shot, is a question I leave to wiser heads than mine to solve. I have endeavoured to point out the apparent advantages of the new invention; and if I have in some small degree succeeded in my object, I shall be well rewarded.

"ORIENT AND OCCIDENT."

NOTES OF A JOURNEY FROM LAHORE TO LIVERPOOL, VIA CHINA, JAPAN, AND AMERICA.

By MAJOR-GENERAL R. REVELEY MITFORD, Author of "To Caubul with the Cavalry Brigade."

(*Concluded.*)

THE Hoffman House is one of the largest and quite the most gorgeous of the magnificent hotels for which New York is famous. The public drawing-rooms, dining-rooms and breakfast-parlour are ornamented with fresco and other paintings by well-known artists; the walls of the passages are covered with rough-cast, heavily gilt, and divided into panels by strips of mahogany and satinwood; the principal windows are bordered with handsome patterns in stained glass; in the music-room are not only two magnificent grand pianos, but also a very large harmonium, and a fair-sized organ; the bed-rooms are airy and comfortable; but the splendour of the great establishment culminates in the bar—a large room hung with paintings by some of the greatest modern masters, and having a long counter, at which every imaginable mixture can be procured, from a common "Resurrection-nip," to a "Presidential straight-swizzle," or a "Dream-of-eternal-happiness-reviver."

The prettiest place in New York is Central Park, with its shady trees, picturesque lake, and beautifully-kept grass. The Egyptian obelisk is very well placed on a slight eminence, and forms a striking object from every point of view. Central Lake is a beautiful sheet of water. By-the-bye, we heard a story about this lake which is good enough to repeat. The subject of Central Park was being discussed by the Town Council: one of the members, who had travelled in Europe, suggested that some "Wenetian gondōlas" would look well on the lake, and moved the grant of sufficient money to purchase half-a-dozen; another member, who, presumably, had stayed at home, proposed an amendment to the effect that only a pair of "gondōlas" should be got, "till we see how the climate of our great country suits them."

On the outskirts of the park are some of the loftiest dwelling-houses in New York, and, I imagine, in the world—blocks called respectively "Granada" and "Osborne"—the former eleven stories high, and the latter fourteen. They are built of red brick, faced with brownish-grey stone, and forcibly recalled the Tower of Babel, or one might imagine them the whole contents of some great quarry exhumed *en masse* and set up on end.

We had been strongly advised not to miss seeing a show called "Buffalo Bill's Wild West," so one afternoon we took the ferry-steamer from the battery to Staten Island, passing close to Bartholdi's statue, which then presented a perfect image of a Republic—rough-hewn Liberty without a head. After landing, we went some distance by train along the shore of the island, and emerged from the terminus on a sandy expanse, which we crossed to a grove of trees sheltering an Indian encampment. The tents or wigwams were made of poles planted in a circle, meeting at the top, and covered with canvas painted with rude figures of animals, birds, or reptiles—the "totem" or emblem of the chief who owned the tent. The floors were boarded, and the furniture consisted of a good many painted boxes, a few guns, bows and arrows, clubs, water-jars, and rough cooking utensils; heaps of coarse blankets strewed the floors, on which lounged Indian men, women, and children, with copper-coloured skins, long, straight, coarse black hair, dirty clothes, and repulsive faces; the chiefs wore head-dresses of eagles' plumes forming a crested ridge commencing from the top of the head, and extending half-way down to their heels, their faces were rudely painted with yellow ochre and vermilion, buffalo-robes covered their shoulders, loose trousers of tanned hide, trimmed down the outer seam with hair, clothed their legs, and "moccasins," or slippers, embroidered with beads and porcupine quills, completed their costumes.

We took our places in the reserved seats facing the arena, a large field enclosed by palings covered with canvas coarsely painted to represent distant hills, forests, &c.; in the centre of the field was a wooden shanty, doing duty for a settler's hut. The heat was most oppressive, even under the shelter of the high wooden roof, and there was a great comsumption of "lemon-squash" and stronger drinks.

A very handsome man lounged in, and talked patronisingly to some of the audience; he wore a picturesque Spanish dress, which suited his sun-burnt features and flowing brown hair; this was "Buffalo Bill" himself, or "Colonel Hon. W. F. Cody." You need not look in

This great structure was thirteen years building, and cost about three millions sterling. Brooklyn is the largest and most important suburb of New York; it is often called the "City of Churches," there being an even larger proportion here than in New York itself; Prospect Park is its chief attraction, and well may it be so, for it is very pretty indeed; wooded hills and grassy slopes border the road which passes the site of the battle of Long Island, where the Americans were defeated with a loss of 2,000 out of 5,000 men, on the 26th August 1776. From a knoll in the centre an extensive view is obtained of the two cities, the harbours, Long Island, and the Atlantic; the huge Elephant Hotel (so called from its shape) can be seen to the right on Coney Island, and another immense building on the extreme left is also a hotel at Rockaway Beach, while the whole line of intervening shore is dotted with gigantic caravanserais for the summer accommodation of the great mass of houseless New Yorkers. The American shows his complete severance from the parent stock in nothing so strongly as in his ignorance of anything approaching English home life and home feelings.

While in Brooklyn we also visited Greenwood Cemetery, a beautifully kept enclosure of five hundred acres, entered through a very handsome gateway. The graves are generally in groups or clusters, as though men were gregarious even after death. The order preserved throughout the enclosure, the well-selected position of the graves, and the handsome monuments so remarkably free from meretricious ornament and tawdry device, do honour both to the taste of the living and to the memory of the dead.

At the north end of Manhattan Island a broad road runs along the high bank of Haarlem River, giving beautiful peeps of the distant Palisades on the Hudson. This Riverside Drive, as it is called, is a favourite resort. On one side, close to the road, stands General Grant's temporary mausoleum, a low semi-circular-roofed building of dark red brick picked out with black, looking like a section of a small tunnel. Bronze gates with a gilt G in the centre close the entrance to the vault, but the coffin is plainly visible on the left, amidst a mass of ferns, dwarf palms, and other plants. A grand monument is to be erected close by, in which the coffin will be eventually placed.

On our last Sunday in America, September 19th, we went to Trinity Church at the south end of Broadway, the oldest church in New York—and the ugliest! The outside is not bad, and the spire is tall and shapely, but the interior is of dull brown stone, unrelieved by any other tint, sombre and dismal enough for a Quaker's meeting-house. It contains a handsome marble reredos presented by the Vanderbilt family, but this is quite lost in the thick brown gloom. The organ-playing was good and the singing fair, but both liturgy and sermon were quite spoilt by the nasal drawl in which they were delivered. In front of the south-east door of the church is a hideous coffin-shaped monument, said to cover the remains of Captain James Lawrence, who commanded the U.S. Ship *Chesapeake*, and was killed in the famous action between that frigate and the *Shannon*, on the 1st June 1813. I say it is *said* to cover his bones, because there is considerable doubt on the subject; the captured *Chesapeake* was taken into the British harbour of Halifax, Nova Scotia, and there Lawrence was buried. When peace was concluded the Americans asked for permission to remove his body, which, of course, was granted; but the story goes that either they were so careless, or the Halifax vestry so remiss, that they exhumed the wrong coffin, and that the honoured bones now reposing under the ugly tea-caddy sarcophagus in Trinity churchyard are those of an old apple-woman! N.B.—This is the New York version.

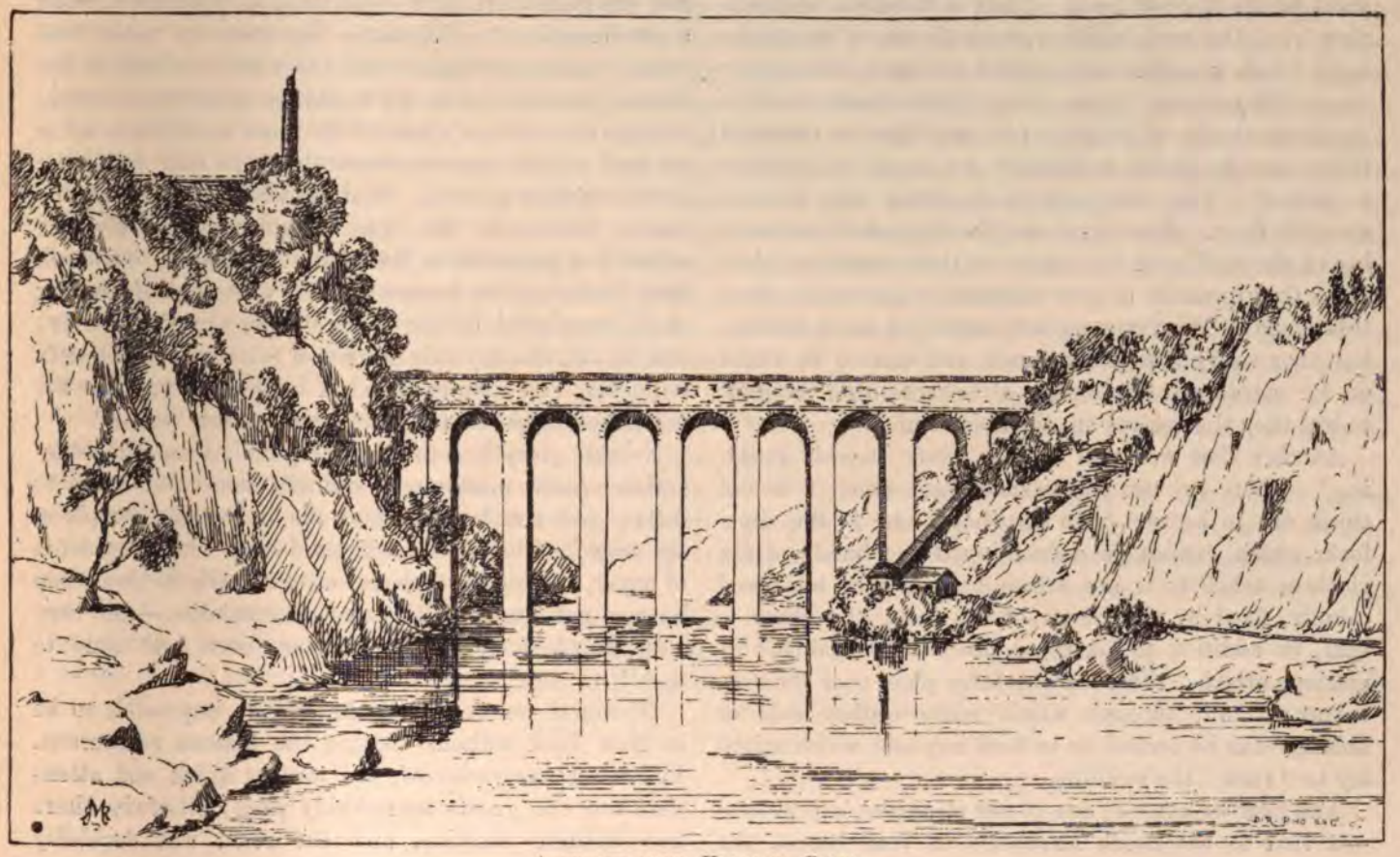
There are many good shops in the principal streets, the best being about on a par with those of Brighton or Scarborough. Fourteenth Street is the liveliest and gayest of all; here we were attracted by a small crowd round a hair-dresser's window, and found that the people were staring at five women, sisters, seated on a platform behind the plate-glass front, with their hair down. This hair was very long, very thick, very black, and very coarse, looking more like the tails of ill-groomed horses than human hair; the women were all ghastly pale, like the ash-coloured martyrs of the Pre-Raphaelite school. We found the dust and wind most disagreeable, especially in the morning, when all the house-sweepings are placed in open barrels on the pavement in front of the doors, and the high breeze scatters the refuse impartially over the clothes and into the eyes of everyone who passes.

The harbour always presents a most busy scene, both on the water and along the wharfs; great ocean steamers and stately three-masted sailing vessels lie alongside the landings or ride at anchor in the roads; hundreds of gaily-decorated yachts thread their way through the labyrinth, like flower-girls in a crowd; white ferry-boats like water-omnibuses cross and re-cross each other, crowded with passengers; steam-launches puff and pant, hooting and screaming in deafening discord; vast floating hotels, three stories high, pass by on their way to Boston or Newport, looking as if they had wandered out of the streets by mistake, and the slightest breeze would overturn their top-heavy hulls, the great "walking-beams" working far above their balconied decks adding much to the appearance of instability; and through all this confusion the barges and rowing-boats are crossing, passing, meeting, racing and all but jostling each other, keeping the water in a foam, while the wharfs, piers and landing stages are crowded by a busy, surging mass of human and equine life, shouting, neighing, kicking and cursing to the utmost limit of its powers.

We dined at one of the great sea-side hotels at Manhattan Beach, on Coney Island; there are two of these monster establishments here, also a bathing establishment for ladies and gentlemen with an amphi-theatre from whose benches three thousand five hundred spectators can watch the splashing of their brother and sister bipeds.

The High Bridge Aqueduct over Haarlem River at the north end of Manhattan Island is another of New York's wonders. As you pass towards it by the Northern Rail Road you can see plenty of granite cropping up, proving the truth of the assertion that New York has the most solid foundation of all the capitals of the world. As you pass further north the buildings become more scattered, and rocky, wood-crowned heights appear, divided by park-like valleys. At High Bridge station we found an elevator ready to take us up the steep bank to the Croton Aqueduct, a noble granite structure 1,450 feet in length, and supported on fourteen massive piers rising 114 feet above the river. The roadway, which is the roof of the aqueduct, is convex, built of herring-boned brick-work, and quite wide enough for carriages to pass each other, though they are not allowed to go over it. At the southern end is a great reservoir approached from the aqueduct by a flight of nearly two hundred steps, and a very graceful Artesian tower which pumps the water from the aqueduct below into the reservoir. This lofty tank supplies fresh water to a great part of the city, and commands a very fine view, especially, looking east, along the course of the Haarlem River to where the sheen of wide waters in the distance marks the site of the once-dreaded Hell Gate. This bend of the river, with its wood-crowned banks dotted with small villas and picturesque wooden buildings, reminded us of parts of Sreenugger, the capital of Cashmere.

Returning by the same route, we found the cars crowded with day-labourers, chiefly Irish, returning from their work. As there is only one class of car-



Aqueduct over Haarlem River.

riage, equality is forced upon you whether you like it or not!

I also went to see Governor's Island, the head-quarters of this district of the army. It is a pretty little place in the harbour, containing a barrack-square, forts, and a green esplanade stretching in front of the detached quarters occupied by the General and his staff; also the library and museum of the U.S. Army Institution. The latter contains many relics of the civil war; and also some of an earlier struggle, for I found a kettle-drum bearing the crown and thistle, and inscribed "Royal North British Regiment, 1st Battalion."

All the officers I met, from the General downwards,

were most pleasant and friendly. I heard many interesting stories of the Civil War and the expedition to the Texan frontier, including the strange experiences of the Lava Beds, where a mere handful of Indians, men and women, defied the army sent against them for several months, and were only defeated at last through the treachery of one of their number. I remarked here, as elsewhere, when the subject cropped up in the course of conversation with American gentlemen, that they invariably alluded to the great War of Secession as "our troubles."

The Western Union Telegraph building is one of the great sights of New York. There is usually a very fine view from the roof, which rises high above its neighbours; but, unfortunately, a thick sea-mist veiled every object the morning of our visit. The elevator took us up eleven stories of the huge pile, and then we mounted three more by stairs, and finally got on to the roof by a ladder! The telegraph instruments are on the eleventh floor. Some idea may be formed of the number of the staff, and the extent of their business, when I say that upwards of four thousand wires radiate from this centre. Many women are employed as signallers, but they weary sooner than men, and cannot be relied on for continued attention. Of course they cannot, unless they themselves are the objects of it!

Another visit was paid to the "Safe Deposit Building." There are two peculiarities here which I do not think are to be met with elsewhere: one is the time-lock, which cannot be opened until the hands of the clock attached to it are set to a particular hour and minute, fixed by the owner of the safe: the other is that, in addition to all usual precautions against burglarious attacks, there are two large pipes over the only entrance door, through which water—either cold or boiling—can be turned on to flood any mob which might try to "rush" the building.

And now we came to one of our strangest experiences—a visit to the Stock Exchange in Wall Street, the greatest gambling-hell in the world! Entering by a side door, we went up to the visitors' gallery, from which we looked down on a large hall dotted with many iron pillars like street lamp-posts, bearing, instead of lights, placards inscribed with the name of some particular stock, such as "Erie," "Milwaukee and St. Paul," "Pennsylvania," &c. &c. At the foot of each lamp-post stood four sturdy leather-seated arm-chairs. These are the only seats on the floor of the hall; they are put up to auction every year, and we were assured that as much as 3,200 dollars had been paid for a twelvemonths' lease of one! An iron rule of the Exchange consecrates each chair to the sole use of the person who pays for it, and this rule is never infringed. I must say it was the only sign of rule or order I could see or hear! Around these small rocks surged a wild sea of screaming, shouting, pushing, gesticulating speculators—now collecting round an individual, now pressing round a lamp-post—forming a dense mass of heads and shoulders in a corner, to dissolve in a moment and rush together to a fresh nucleus in the middle of the hall, till the crowd looked as if they were having several foot-ball scrimmages at the same time, lynching half-a-dozen detected pickpockets, or expecting us to throw coppers from the gallery—anything except transacting serious business. Men shook their fists, jerked and gesticulated with outstretched fingers, wildly waved their arms, stamped, yelled and bellowed till a free fight seemed imminent and unavoidable! How *could* they do business in such a pandemonium? Yet many fortunes are made, and (what is more intelligible) still more are lost here daily. Sometimes the mad crowd would recognize some speculator in our gallery, when all the faces would turn up to us, and all the hoarse voices shout to him to "come down and take a turn." And yet we were told that this scene, wild as it was, was nothing to the disorder which had prevailed on the 15th of the month, on which date Exchange law decrees that the white hat of summer shall be replaced by the black "stove-pipe" of winter; and all who disobey this unwritten edict are immediately bonneted, and have to rush off hatless to procure the regulation head-covering from the nearest "store."

Notable exceptions to the raving mob were the blue-cotton coated messengers running here and there to deliver notes and telegrams—the only quiet people in the crowd. The floor was littered deep with fragments of paper, to which everybody seemed busily adding when he was not busier yelling and gesticulating—and they *were* busy! I do not think they even had time to spit!!

Of course we went to Delmonico's: impossible to be in New York without visiting the famous restaurant. The menu was *recherché*, the waiters quick and attentive, and the guests remarkably quiet; otherwise there was nothing striking, and the room was decidedly sombre.

The theatres also came in for a visit, and we thoroughly appreciated the amount of elbow-room allowed, which contrasts very favourably with the cramped stalls of most of our own dramatic and operatic houses.

And now the time had arrived for us to bid adieu to America, and to the kind friends whose companionship and hospitality had added so much to the pleasure of our visit to the capital of this strange New World—*how* strange none can tell without personal experience. A country of unlimited resources and boundless natural wealth, of vast area and scanty population, of little history and no memories—inhabited by an immigrant nation, a heterogeneous people of strange contrasts and opposing characteristics—the South, aristocratic, refined, proud, and self-indulgent, descended from the

SHIP-LAUNCHING.

By L. A. SMITH.

Part. II.

I QUITE agree with an old writer on the subject of launches, who says that "a launch is an exhilarating sight, and has formed the subject of many a picture"; which must, however, necessarily be defective, for a picture cannot represent motion, and beyond all doubt the "exhilarating sight" is that of the stately vessel gliding to its watery dwelling. Poets have succeeded better in describing the scene; Longfellow's beautiful lines in *The Building of the Ship* are too well known to need repeating, and Carrington admirably depicts the ceremony in the following:—

> At last,
> By genius nobly form'd, the finished ship
> Is ready for the impressive launch. The day
> Arrives, the Atlantic tide is swelling high
> To place her on its bosom. O'er her decks
> The streamers wave all-gallantly around.
> Enlivening music floats, while myriads crowd
> Where the bold vessel on her rapid plane
> Sits proudly. Hark! the intrepid artizans
> Remove her last supports; a breathless pause
> Holds the vast multitude. A moment she
> Remains upon her slope, then starts, and now
> Rushing sublimely to the flashing deep,
> Amid the shouts of thousands she descends,
> Then rises, buoyantly, a graceful pile
> To float supinely on the blue Hamoaze.

Four launching ways are to some extent objectionable, as in case the ground gives way, as it is very liable to do on a river bank, the weight intended to be spread over two launching ways is thrown entirely on one. One of the finest launches ever witnessed at Chatham was that of the *Waterloo*, a first-rate ship of 120 guns, which appropriately took place on the anniversary of that glorious triumph of the British arms. On that occasion the scene in the vicinity of the dockyard, and on the broad and glistening surface of the Medway, was splendid and imposing. As the moment drew nigh the eyes of the vast congregation of spectators became rivetted on the stern of the *Waterloo*, which was the only part not concealed by the lofty roof of the building ship. At length the heavy discharge of a single gun boomed impressively on the ear: a deafening shout burst from the multitude: the huge structure moved! The shores which held it had been removed, the ceremony of naming was performed with the accustomed formalities, and the magnificent *Waterloo* glided magnificently into her home on the world of waters, amidst the roaring of artillery, a perfect model of symmetry and strength (see illustration 1). And then the sympathies of the spectators were differently affected. The swell produced by the sudden plunging of so vast a body into the water, was necessarily considerable; and as the noble ship swung round with her formidable broadside, several boats were swamped and human lives perilled.

The shouting of the multitude was again hushed, but the excitement, though painful, was only transitory; in a few minutes the gigantic vessel was securely moored alongside the *Southampton* frigate, lying in ordinary without the occurrence of a single serious accident. The *Waterloo* was considered one of the most perfect specimens of the round-stern build (invented by Sir Robert Seppings, Surveyor of the Navy) that had been constructed.

Our illustrations are from models in the Museum, Royal Naval College, Greenwich, and represent the launches of the *Artois*, and the *Diana*. The *Artois* (38 guns), launched on a ¼-inch scale. Her length, 146 feet 3 inches; breadth, 39 feet 2½ inches; depth, 13 feet 9 inches; tonnage, 996. She was built in 1794, on the Thames, by Messrs. I. and W. Wells.

The *Artois* may fairly be taken as a model of the method of launching ships of her class in His Majesty's Dockyards in 1794, the method adopted subsequent to that of 1795. The advantage of this method is that the cradle can be got out from under the bottom without docking the ship immediately after she is launched, leaving only the planks and cleats on the bottom, to be unbolted when the ship goes into dock (see illustration 2).

The chief difference in this and in the plan adopted for the *Diana* (see illustration 13) is, that no spurs or quarter shores are used; the poppets being well secured at their heads and heels without spurs, and the two foremost and three aftermost poppets have their heels placed nearer the extremities of the ship, in order that they may stand nearly square to the body, and thus give more support to the structure.

The *Diana*, launched on the same scale, is a vessel of the same dimensions. The launching ways to this ship are fitted in a similar manner to those of the preceding model, but more extensively carried out, leaving five transverse vertical timbers or spurs forward, and six aft on each side of the ship, besides which fore and aft planks and cleats are fitted and bolted to the ship's bottom, to support the heads of the poppets; and in order to keep her perfectly steady at the time of launch-

ing, five quarter shores are placed on each side, and so arranged that immediately the ship begins to move they become disconnected.

This plan was in use in 1794, and was supposed to be an improvement upon that of the *Artois*, inasmuch that the increased number of spurs and the additional quarter shores were considered to add further to the safety of the ship in launching. The same objection, however, applies to this model as to the last, namely, that of not being able to get the cradle from under the ship's bottom while afloat.

There is a description given in *Rees' Encyclopædia* of launching, which it may be interesting to quote :—

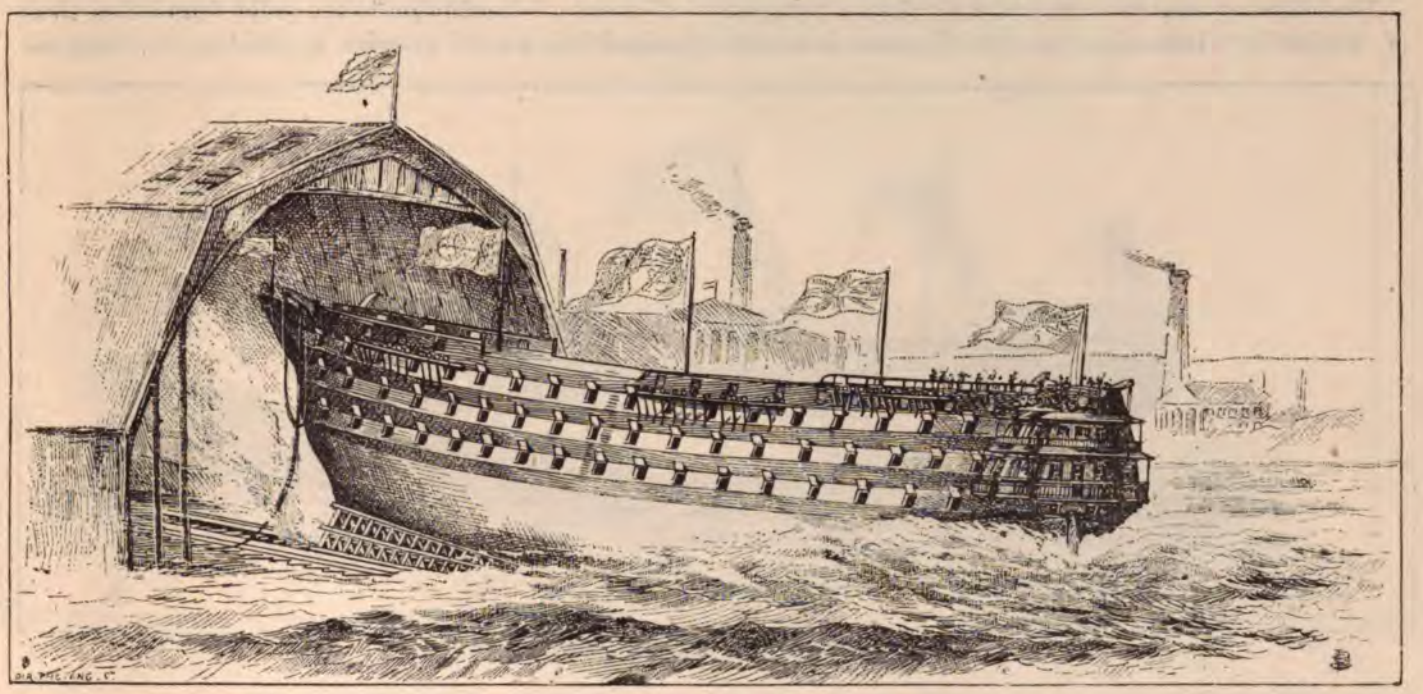
"To facilitate the operation of launching, the ship when she is first built is supported by strong platforms, laid with a gradual inclination to the water, on the opposite sides of her keel to which they are parallel.

"Upon the surface of this declivity are placed two corresponding ranges of planks, which compose the base of a frame called the cradle, whose upper part envelops the ship's bottom, to which it is securely attached. Thus the lower surface of the cradle, conforming exactly to that of the frame below, lies flat upon it lengthways, under the opposite sides of the ship's bottom ; and as the former is intended to slide downwards upon the latter, carrying the ship along with it, the planes or faces of both are well daubed with soap and tallow. The necessary preparations for the launch being made, all the blocks and wedges by which the ship was formerly supported, are driven out from under the keel, till the whole weight gradually subsides upon the platforms, which are accordingly called the ways. The shores and staunchions by which she is retained upon the stocks till the time of launching are at length cut away, and the screws applied to move her if necessary. The motion usually begins at the instant when the shores are cut, and the ship slides downward along the ways, which are generally prolonged under the surface of the water to a sufficient depth to float her as soon as she arrives at the farthest end thereof. When a ship is to be launched, the ensign, jack, and pendant are always hoisted, the last being displayed from a staff erected in the middle of the ship.

"Ships of the first rate are commonly constructed in dry docks, and afterwards floated out by throwing open the flood-gates, and suffering the tide to enter as soon as they are finished."

In the last article we spoke of the earlier and necessarily less perfect methods of lanching, and those experiments which had resulted in failure. We shall now take the systems of the present time, and see what science in its giant strides has accomplished in this particular branch of naval architecture. We shall consider the system adopted by Messrs. James and George Thomson of Clyde Bank. Due consideration must, at all times, be given in preparing the "launch" to the relative weight of the ship, and area of the soles of the ways, declivity of launching slip, and to the time it is intended the ship shall rest in her cradle before the launch takes place, and then, finally, on the kind and quantity of grease to be used between the sliding surface; for all these points affect the *stiction* to be overcome in launching the ship.

The advantages obtained by the use of camels are due to the fact that they take all the weight of the ship



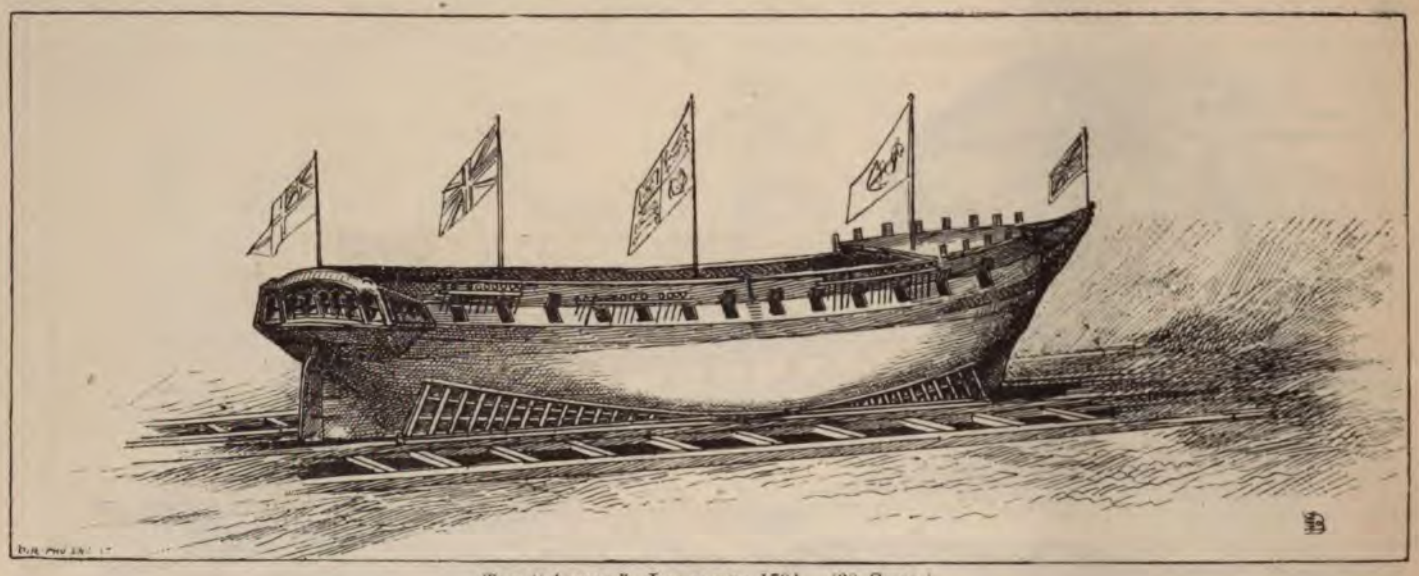
H.M.S. "Waterloo," 120. Chatham, 1834.

off the bilge-ways, except at the extreme fore-end, so that the after part is lifted clear of any obstruction that may exist; or where the grease used is bad or insufficient in quantity, the adhesion of the surfaces in contact is overcome, and they are left free to slide upon each other.

Camels may be briefly described as follows: there should be one to fit each buttock, 72 feet long, to be planked with 4-inch fir planks, and one for the stern, 20 feet square in section, and 48 feet long, to be built of 5-inch fir planks; the collective lifting power, when properly in place, ought to be equal to 1,100 tons. The camels should be provided with valves for reducing their lifting power, although it may not be found necessary to use them.

The following method was adopted by Messrs. Samuda of Poplar for launching the two German iron-clad frigates *Kaiser* and *Deutschland*. The principal dimensions of which were: length, 285 feet; beam, 63 feet; gross displacement (when fully equipped and engined) 7,400 tons. The slip is formed of no less than 400 piles of Dantzic fir, each 16 inches square and about 30 to 40 feet long. These are arranged in transverse rows of 7 piles in each row, spaced with intervals of 7 feet for the entire length of the slip. These piles are arranged generally as follows: two in the middle line to support the keel of vessel, two approximately under each launch, and one beyond alternately on each side. In addition, the number of piles is increased on the lower portion of the slip, beyond that on which the vessel is built, and over which it has to travel before finally leaving the end of the sliding planks. Cross-baulks of Dantzic fir, 16 inches square, are worked on the top of each row of (7) piles, and tenanted on the tops of them; additional piles also driven under the fore-foot of the vessel to support the extra weight of the overhanging bow. The piles are in every case driven down to the gravel (generally about 30 to 35 feet below the surface of the ground), for which purpose a pile-engine and a 20-cwt. monkey is used, and when this weight, falling through 26 feet, fails to drive the pile more than half an inch, the required solidity is considered to have been attained. Longitudinal baulks are worked on the tops of the cross-baulks at the fore-end, where the piles project much above the ground; and aft, where, from the rise and fall of the tide, the ground is shifting, fifty tons of chalk were also placed round about the ship to obviate the action of the tide. On the top of the cross-baulks shorter baulks are fastened, also of Dantzic fir, and these are surmounted with hard wood blocks on which the keel of the vessel rests.

Buttresses.—In addition to the solid foundation thus obtained it is a usual practice to build up at least six buttresses, three on each side (in this case four on each side were adopted) under the bilges of the vessel. These buttresses were formed of baulks of timber, about 16 inches square, and 8 feet long, and are laid alternately lengthwise and transversely, forming a solid pedestal 8 feet square, and reaching from the ground to the under side of the bilge, and thus relieving a large portion of the weight of the ship from the blocks under the keel in the centre line. As a further precaution, blocking is used between the ground and the transverse or cross-blocks, so as to distribute the weight more effectually from the centre to the side piles. Though the cross-baulks were of Dantzic fir, as here described, I would remark that it would have been a great improvement to have used hard wood instead (Samuda). While building the vessel the entire weight (except to the extent relieved by the buttresses and shores) clearly is taken by the logs over the centre piles, and the effect on the cross-baulks was to press them so seriously that



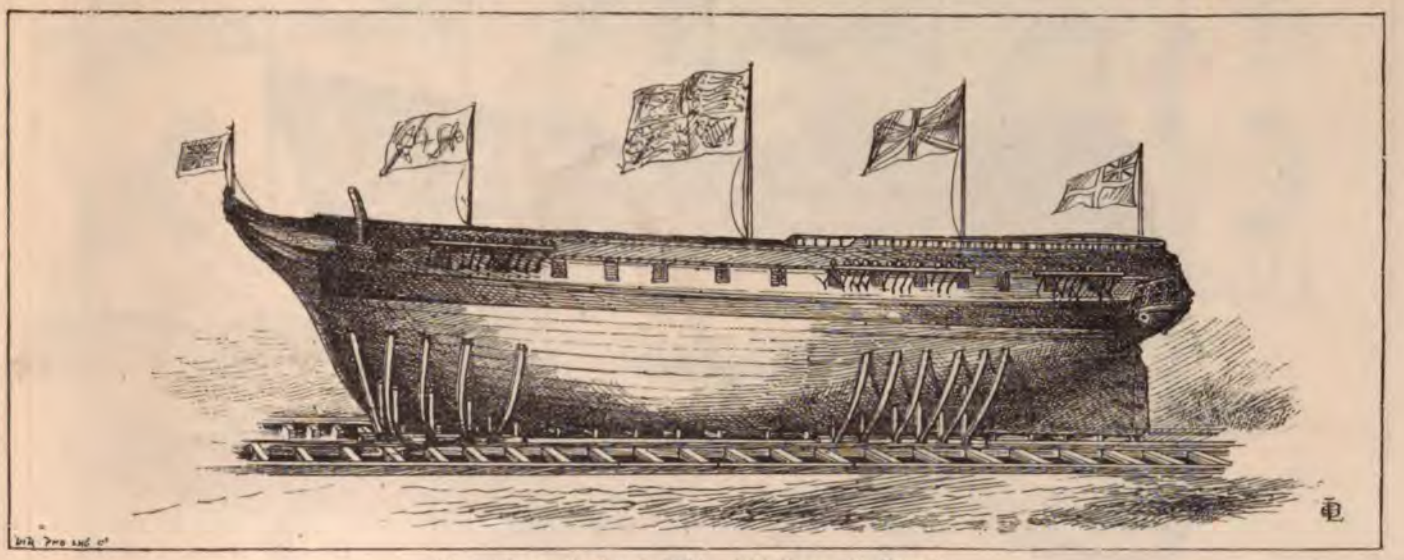
THE "ARTOIS." LAUNCHED 1794. (38 GUNS.)

they actually forced in the fibre of the wood where tenanted to the centre piles, and caused a deflection of the cross-baulks to the extent of three quarters of an inch, a result due to the softness of the fir, which probably hard wood might have resisted.

Inclination.—The inclination of the slip while building was $\frac{9}{16}$ of an inch per foot, and the blocks were kept a sufficient height to allow convenient room for working under the vessel, and for giving additional inclination for launching. If this is not attended to when the keel is laid, great difficulty and risk may occur when the launch has to be prepared. The launching ways are laid with a camber of 8 inches in their length, the line being carefully set off to form the arc of a circle; the inclination at the top is $\frac{3}{4}$ of an inch per foot, increasing lower down in accordance with the camber.

Launching Ways.—These are of rock elm, 4 inches thick, bolted together and to the cross-baulks on the top of the piles, and supported by blocking up between the piles, wherever they are sufficiently out of the ground to enable this to be done. The ways are 3 feet 8 inches wide, with a ribbon of oak 8 inches × 4 inches, increased at the fore end to 11 inches × 11 inches to receive the heel of the dog-shores on the outer side of each.

Bilge-Logs and Launch.—The bilge-logs are of oak, each 260 feet long, by 3 feet 1 inch wide, and are each composed of five lengths attached together by chains. The total area of the bilge-logs on both sides was 1,600 feet, the launching weight of the *Kaiser* was 3,500 tons, thus giving a weight of 2·15 tons on each superficial foot of bilge-log surface. The *Deutschland* weight as launched was somewhat less, viz. 3,000 tons, giving a weight of 2 tons (nearly) on each foot of bilge-log surface. The greatest weight that is found by practice to be safely allowed is 3 tons of weight to each foot of greased bilge-log surface; anything within this may be considered safe. On the top of the bilge-logs is worked the stopping up, which is composed of Dantzic fir timber, carefully fitted to the ship with poppets at fore and aft ends. The tops of the poppets are lined with iron, and fitted with iron forgings abutting against the lands of the skin plating, and secured by two iron bars, each 3½ inches diameter, lashed together at both ends by chains, passing under the fore-foot of the vessel (No. 15). The fore ends of the launching-logs are also securely lashed together by chains and ring-bolts, having forelocks for disengaging after the launch, which is done from the deck of the ship. By this arrangement the fore poppets and launch are maintained in their places, and prevented from spreading out when the extra strain comes on the fore end of the launch at the time when the stern is lifting, and are easily and instantaneously disengaged and set free when the launch has been effected.

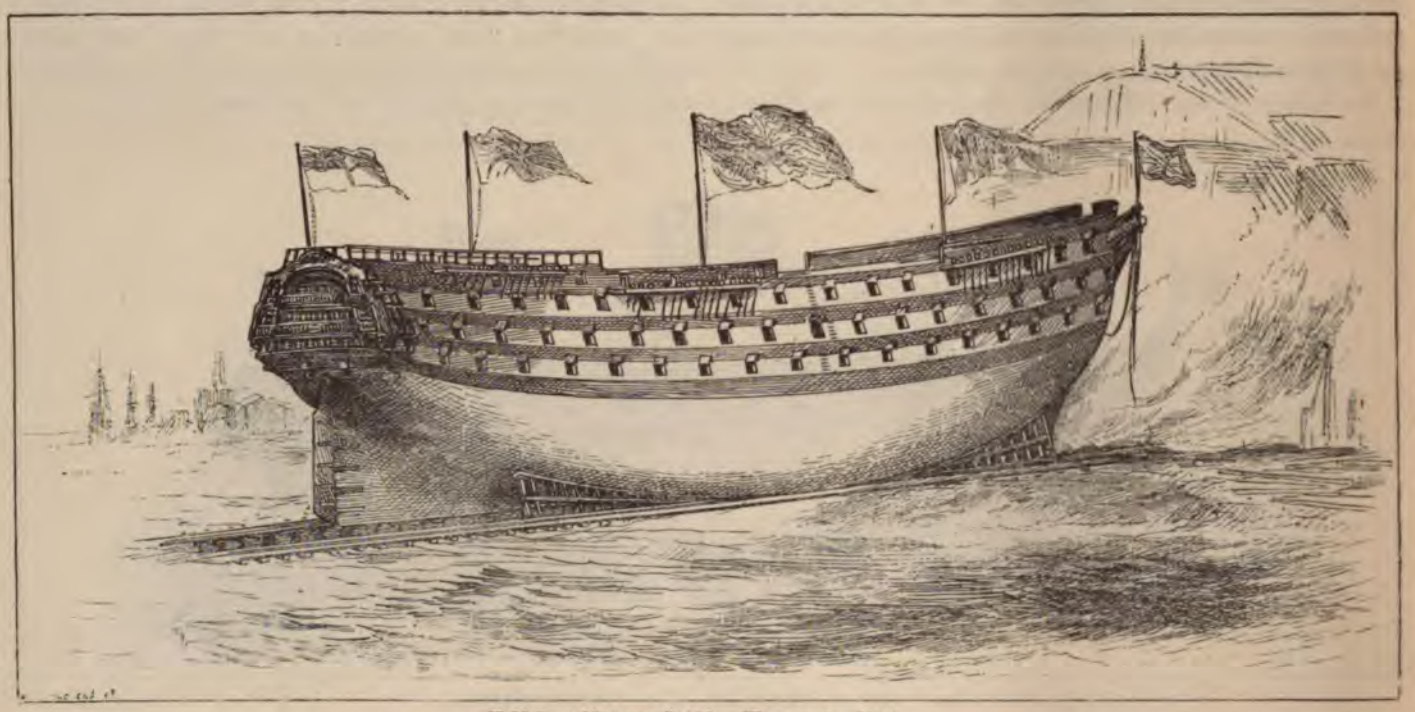


THE "DIANA." BUILT 1794. (998 TONS, 38 GUNS.)

Shoring up Inside Ship.—A tier of shores between the inner and outer bottom is placed over each launch, with shores above the inner bottom up to each deck above; particular care is taken to shore up strongly over the foremost poppets to resist the extra strain that part receives when the vessel is partly in the water. The vessel received no damage or straining whatever in launching, not a rivet head fell off, nor did the slightest sign of injury show itself, and the same may be said of the numerous vessels launched during the last twenty-five years from the same works, and in which similar care (according to the size of the vessel) had been bestowed on the arrangement and carrying out of the launch. The small change of form of vessel before and after launching was further most satisfactorily proved by ascertaining that no caulking of the water-tight compartments of the double bottom was disturbed; the

whole of the compartments (thirty-two in number) were tested by filling with water under pressure while the vessel was on the slip, and a repetition of the water testing was again made after launching, and every compartment found to be absolutely tight.

Launching.—After the whole of the launch, stopping up, poppets, &c., have been accurately fitted to the vessel, and about three weeks previous to the launch, the launch is turned out and the ways coated with hot tallow and soft soap, then replaced and fixed. On the day of launching, oil is forced between the bilge logs and the launching ways through the oil-holes provided for the purpose, the quantities used being as follows, viz. :—



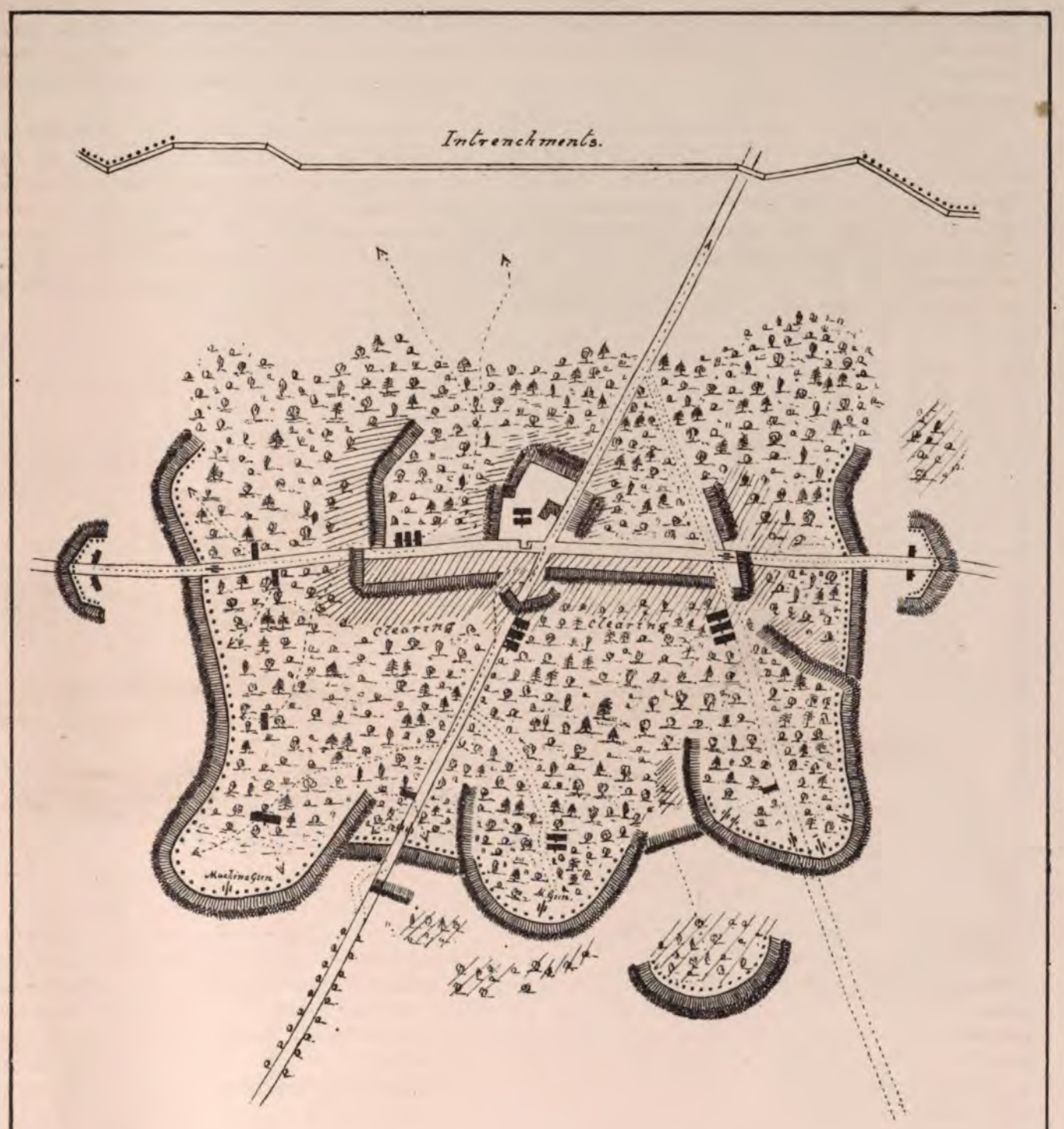
H.M.S. "Nelson," 120. Woolwich, 1814.

for the entire operation of launching: tallow, 4 tons 6 cwt.; soft soap, 5 cwt.; oil, 55 gallons. On the morning of launching, the vessel is set up by driving in wood wedges between the bilge-logs and stopping up; and when the weight is so far taken on the launch the blocks under the keel and the bilge-blocks and shores are gradually removed, beginning from aft, but leaving ten to twenty blocks, according to circumstances, under the fore-foot of the vessel until after the dog-shores are down. Cleats at the after part of the launch are provided to assist the dog-shores till near the time of launching, when they are gradually and carefully removed. The dog shores are removed by the fall of weights—one on each side of 6 cwt., acting on its own dog-shore and suspended over them by a rope passing round the stem. This rope is cut by the lady who launches the vessel, thus releasing the two weights at the same instant, and insuring the two dog-shores being removed simultaneously.

Hydraulic Rams for starting Vessel.—One 60-ton ram was fixed at the end of each bilge-log, and one 100-ton and one 40-ton ram under the fore-foot of vessel, besides a large tackle on each side led to double-purchase crab. These were provided in case of need to start the vessel, but were not required, as she began to move as soon as the dog-shores were down, tripping most of the blocks left under the fore-foot.

Check Rope.—A hawser was fixed to the stern of the vessel and attached to a chain cable and anchor carried some distance up the stream, and so arranged in length and position as to cant the stern of the vessel up the river as soon as she became clear of the slip, and so prevent the danger of the vessel running on shore on the opposite side of the river. By this means the vessel is also brought into a suitable position to be laid hold of by a tug-steamer that is kept in readiness for that purpose; and when so attached to the tow-rope of the steamer, other tugs are employed to draw out the launch and entirely sweep and clear away whatever fragments of it may still be left adhering to the hull.

L. A. Smith.



Defence of a wood held in front of a position.
Garrison 3 battalions, 1½ batteries, & 2 machine guns.
Scale 12 inches to 1 mile.



MODERN TACTICS.

By CAPTAIN H. R. GALL, Late 5th Fusiliers.

(Concluded.)

CHAPTER XIV.—Woods.

WOODS, like villages, are common and important features on most battle-fields, and are often the scene of desperate encounters. Their tactical importance fixed, woods when held should invariably be defended from their outer edges. The heart of the defence of a wood lies in its outside edge. Before placing a wood into a state of defence it should be carefully reconnoitred, and the following points noted:

I. Its breadth, depth, shape, and open spaces.

II. Roads, paths, streams, ravines, and their direction.

III. Cover outside, undulations of ground, etc.

IV. Flank defence afforded from other parts of position occupied, and to what extent troops detached to hold a wood can be supported.

V. To defend a wood two men per yard of its outside or exposed edges should be considered sufficient.

Steps in the Defence of a Wood.

I. Cut down brushwood if procurable; if not, fell the smaller trees round outer edge, and throw up trenches behind the entanglement thus improvised, taking care that the entanglement does not impede the view of the men firing over it from behind the trench. Trenches, owing to the roots of the trees near the surface, are often difficult to dig, in which case small trees should be cut down and laid across the openings between the larger ones lengthways to form a barricade. The salients are especially vulnerable and should be first attended to, and afterwards the re-entering angles.

II. Place guns outside, on flanks, behind epaulments, if they can command the whole of the approaches. When introduced into the wood their lines of retreat must be amply provided for by being placed near the roads.

III. As the heart of the defence of a wood lies in its outer edge, supports and reserves should be posted so as to be quickly introduced into the fighting line.

IV. Roads leading from the enemy if not required by the defenders should be cut up; but, if wanted to issue by, defended near the entrance by lunettes (open works forming a salient angle with short flanks), or by barricades placed across them rather in front of the wood.

V. If a road, stream, or ravine happens to run behind and more or less parallel to the outer edge, a second line of defence is sometimes formed along its near side. In this case, a separate garrison should be provided, as men on the run, especially in the almost hopeless confusion of a retirement through a wood in contact with a pursuing enemy, are hardly to be depended on. As a general rule, when a second line of defence is decided upon, the first line should be directed to fall back to an entrenched position about 500 yards back from the wood, in order to be rallied, and ready to protect the withdrawal of the second line when it falls back, or to be led forward to their assistance in good order, if the enemy, which may frequently happen, has been seriously checked by the second line. In this manner a wood may sometimes be recaptured; but as a rule next to its outside edge the best line of defence is a line of entrenchments lying back about 500 yards from the wood.

VI. If the wood held is isolated, the reserves should always hold an entrenched position in rear of it to cover the withdrawal of the defenders. If held in connection with a position every available man should be near its outer edge.

VII. The withdrawal of troops through a wood is always a difficult operation, and communications are of the greatest importance, and should, if possible, be clearly marked out, and the wood, if at all extensive, be divided off into sections for defence, with non-commissioned officers posted at intervals to direct men of their own battalions, or brigades, in what direction they are to keep; otherwise, if briskly followed up, the utmost confusion is almost certain to reign.

For defence of a wood (*Vide* Plate I.)

Attack on a Wood.

Like all other attacks, that on a wood should, if possible, commence by a heavy cannonade directed against the defenders' guns, with a view to silencing them if they show, and then particularly concentrated on two or more salients which it has been determined to carry by assault. Guns should also be distributed to keep the defenders generally employed all along their front, and especially on the flanks if they can be reached. The best formation to carry a wood is in successive waves of skirmishers pressed on one after the other, until a footing has been gained somewhere.

The reserves should then be poured in as fast as they can be got up, and the defenders pressed back vigorously until the farther edge is reached, or a second line of defence has to be carried. This is seldom a serious undertaking if the defenders of the first line are vigorously followed up, as their presence prevents the second line from acting unless the means of retreat are ample, and the discipline very superior. The moment the infantry gain a footing the guns should gallop up, going round the flanks if they are permitted to by the defenders holding other parts of the position; if they cannot get round, some light guns should follow the infantry through the wood, with a view to being up to aid them by their fire to hold the far edge against counter attack.

As the assailants attacking a wood have generally to cross the open, and usually suffer heavily from the fire of an invisible enemy of unknown strength, a repulse is very discouraging, and the most strenuous efforts must be made to press forward at all hazards. To call upon repulsed battalions to make repeated efforts shows either bad direction in the first assault, or recklessness which is not to be classed with valour.

CHAPTER XV.—Villages.

On a field of battle, one or more villages usually form prominent tactical points for the possession or retention of which the most strenuous efforts are made. A village is often situated at the junction of two or more important roads, and is then of the first importance. Villages, hamlets, farms, or large mansions, with their surrounding out-houses, all come under the same classification, though their tactical importance will depend on their situation, and to what extent troops holding them can be supported.

In connection with a position there are five kinds of villages, or groups of buildings, one or other, if not two or more, of which are likely to be met with:—

1. A village on a flank.
2. A village in or about the centre of a position.
3. A village in front, within artillery range of other portions of the position.
4. A village in front, beyond artillery range, but still too near to be disregarded.
5. A village behind a position, or on a line of retreat within range of it.

The general outline of the exterior defence for each is roughly indicated in Plate II., where five villages are dotted about, all held in connection with an imaginary position.

No. I. is defended in front and on its exposed flanks.

No. II. in front and on both flanks.

No. III. same as No. II.

No. IV. all round and provided with a strong reduit or citadel.

No. V. in front and on flanks.

Without seeing a position it is impossible to say which is the most important; but a village, unless it can be held in connection with the rest of a position, ought rarely to be occupied, as it is pretty certain not to be attacked unless its possession is essential to the assailants. No unnecessary sieges, is a maxim of strategy. No unnecessary assaults, is equally applicable to tactics.

The defence of villages comes under the head of field fortifications rather than tactics; but it is difficult, if not impossible, to draw a line between field fortifications and tactics in these days of hasty redoubts and intrenchments in connection with modern battle-fields.

The following are the salient principles connected with the defence of villages, which may conveniently be divided under two heads, viz.:—

1. Villages held in connection with a position or a line of investment.
2. Isolated villages.

Isolated villages are extemporized forts, and with time and labour available can be made capable of necessitating almost an investment. They are generally utilized for depôts on a long line of communications, and should as a rule, be selected in preference to small towns, the civil population of the latter being an additional source of anxiety and trouble. Again, isolated villages are often held at the exit or entrance to mountain passes, or where they command the approach to a bridge or ford over a river.

The only difference between the defence of an isolated village and one held in connection with a position is that the former is generally prepared for defence all round.

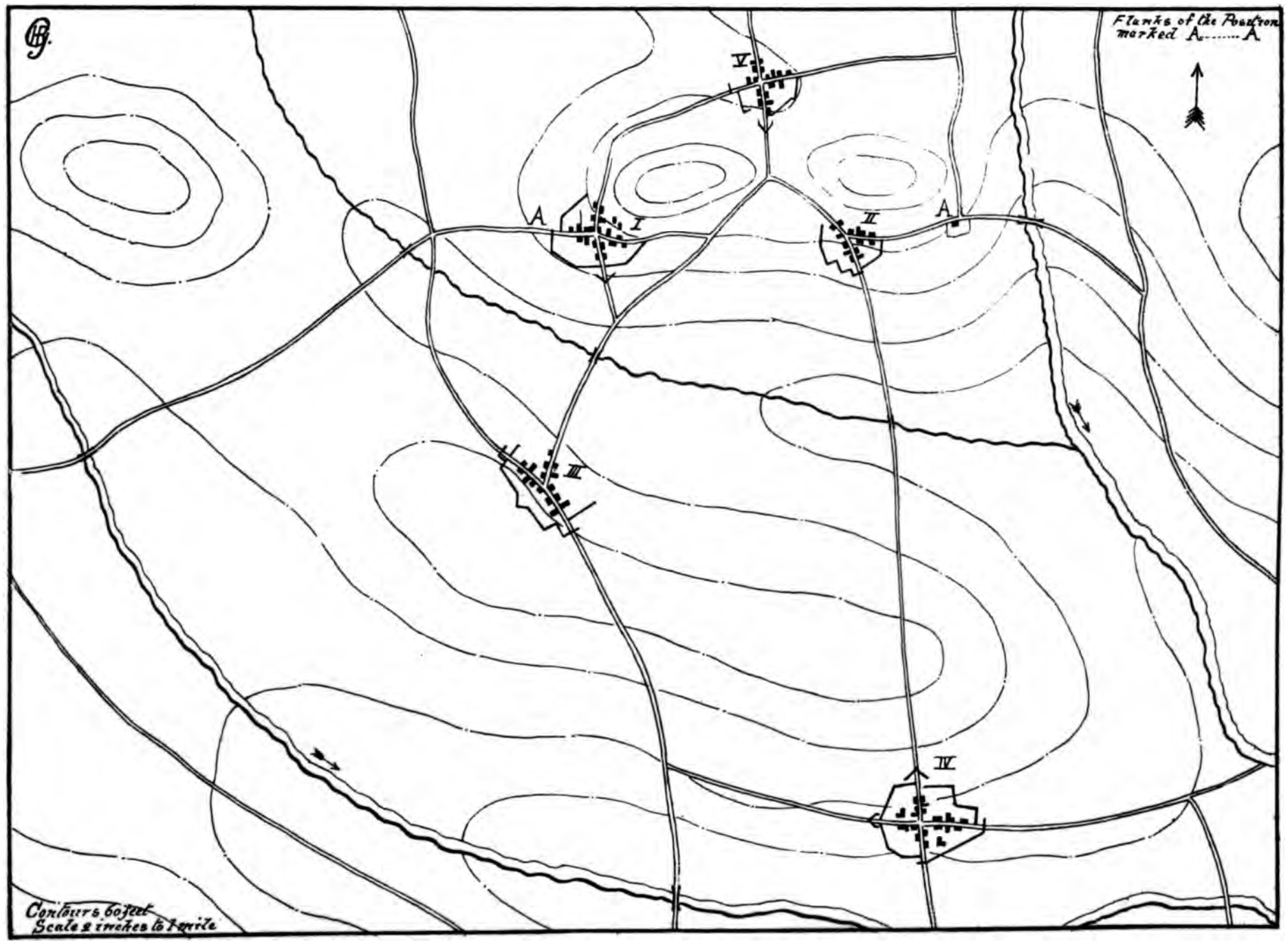
If a village is to be held to the last, or until reinforced, a reduit or keep must be prepared for the garrison to make their last stand in. If, on the other hand, it is only to be held for a certain time, and then abandoned, it is useless to prepare a keep.

Villages held in connection with a position are usually so important that their recapture will often have to be undertaken, in which case a reduit is of great importance. The garrison told off to the reduit must be kept quite separate from the rest of the defenders. The object of a reduit in this case is to keep a foot still in a place after it has been carried. A few bold men inside can assist greatly in the recapture of a village while their presence in the enemy's ranks, so to speak, must have a more or less paralysing effect.

Four Principal Considerations which influence the Defence of a Village.

I. To what extent it commands, or is commanded by, the surrounding country.

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FIVE CLASSES OF VILLAGES IN CONNECTION WITH A POSITION.

[redacted]

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THE TRANSCASPIAN RAILWAY.

By C. J. L'ESTRANGE.

THE construction of the Transcaspian Railway, and the piercing of the Isthmus of Panama, will, probably, be regarded by the historian of the future as the most noteworthy achievements of engineering science during the decennium 1880–90, although they have hitherto attracted much less attention than they deserve. Long before M. de Lesseps' dreams are realised, the Transcaspian Railway will be completed to Samarkand, and the capital of Bokhara brought within a few days' journey of London and Paris. For several reasons, the progress of the line through the deserts of Central Asia has been but scantily recorded by the English press. In the first place, the work was carried out in an almost unknown quarter of the world; and secondly, the Russian authorities are not accustomed to volunteer information on the progress of national undertakings. News came, therefore, somewhat fitfully, and each separate announcement, that the railway had been extended to Geok-Tepe, to Merv, and eventually to the Oxus, was received with surprise by the general public in this country. The rapidity with which the line was constructed has, indeed, never been equalled in any similar undertaking, and this in despite of the most formidable natural obstacles. The energy of the Russian Government in prosecuting the extension of the railway stands out in strong relief against the perfunctory progress of the British Quetta-Candahar line, While the Afghan Delimitation Commission was spending laborious days in an uneven contest with Russian diplomacy, a vast army of railway troops and workmen were pushing forward, with the utmost speed, the greatest strategic line ever constructed. The Transcaspian Railway has already effected a revolution in Central Asian life, and the agricultural improvements of the Russians will, probably, ere long, exercise an equally potent influence on the physical condition of the country. Its social and political importance is, indeed, even more noteworthy than its political significance, to which attention has been hitherto almost exclusively drawn.

During the last few weeks, a most valuable history of the Transcapian Railway has appeared from the press of Messrs. Helwing of Hanover. General Annenkoff, the constructor of the line, has placed his notes and memoranda in the hands of Dr. O. Heyfelder, who accompanied Skobeleff's Geok-Tepe expedition, and is attached as principal medical officer to the railway troops in Transcaspia. Dr. Heyfelder is intimately acquainted, not only with the country, but with all the events that have happened in Central Asia during the last decade; and his work, officially inspired as it is, forms the principal, indeed almost the only work of reference on the history of the Transcaspian line. In the following pages we must acknowledge our principal indebtedness to Dr. Heyfelder's work, but we have endeavoured to bring the narrative up to the present time by supplementing his information from the most recent accounts of the Russian advance in Central Asia. Dr. Heyfelder's history necessarily does not include the work accomplished during the months in which his book has been in preparation.

II.—The Russian Advance.

THE easterly movement of Russia around the Caspian was delayed for many years by the heroic resistance of the Caucasian tribes. The Russian army was sufficiently occupied in conquering the Caucasus, without seeking adventures farther afield. So soon, however, as the hill country was thoroughly subdued, the energetic advance of Russia into Central Asia was recommenced. In 1865 Tashkend was conquered, and the Government of Turkestan established. Chodsand fell in 1867, and Samarkand shared the same fate in the following year. Khiva, encompassed by deserts, had for centuries resisted the extension of Russian territory in Asia. As early as the seventeenth century she was menaced by several Cossack expeditions, all of which ended disastrously. Peter the Great sent an army of 4,000 men across the desert in the broiling heat of a Turkestan summer. Many died on the way, and those who survived the dangers of the desert were cut to pieces, almost to a man, within a short distance of the city. No considerable expedition was again undertaken by the Russian Government until 1839, when 5,000 men were started, this time in mid-winter, to cross the desert. They were, however, driven back by the extreme cold, when only half the distance had been covered, and scarcely 2,000 men returned to Russian territory The next attempt in 1873 was at length successful. The small Khanate was attacked simultaneously by five columns—one from Krasnovodsk, another from Orenburg, a third from Kinderly, a fourth from Tashkend, and a fifth from Kazala. Four of these columns reached Khiva, the fifth was forced to retreat after suffering severely from want of water in the desert. The city,

attacked on two sides, surrendered without serious resistance, and Russia added 200,000 square miles to her vast territories.

In the meanwhile Colonel Stolietoff had established Russian outposts at Krasnovodsk and Michailovsk, on the east of the Caspian Sea, had partially explored the surrounding country, and undertaken several small expeditions. This opened up a new field for Russian conquest, and pretexts were not long wanting for an attack on the neighbouring tribes. The case for Russia was ably stated some years ago by Colonel Säussermann, an old Caucasian campaigner. He contended that the action of Russia in Asia could not possibly be otherwise than it has been; that she has been driven on by the force of circumstances in her seemingly aggressive march eastwards. If any charge can be made against her, it is, he says, that she has not been sufficiently firm and consistent in this movement. "Whenever the force of circumstances imperatively required that another step forward should be taken, the Government was opposed to it. They did not wish to see the bounds of the Empire extended, and were alarmed by certain considerations of foreign policy. In every case moderation and diplomacy were recommended, the recourse to arms forbidden, and the inevitable staved off for a year or so, until the attacks of the Turkoman hordes became so intolerable that no other remedy remained than that which had been recommended, and should have been adopted, years before . . . For many centuries the Kirghese and all other Turkoman tribes have regarded robbery, plunder and the slave-trade as their natural calling. Caravans were peculiarly exposed to their attacks, and our trade with Central Asia was thereby fatally crippled. Some end must sooner or later be put to this state of things, and the only effective remedy lies in the complete subjugation of the lawless nomad tribes which cause the mischief. After our occupation of Turkestan it became imperatively necessary for us to occupy a point on the east coast of the Caspian Sea; and our choice fell upon Krasnovodsk, commanding the shortest caravan route to Khiva."



THE WALLS OF GEOK-TEPE.

In the year 1868 a detachment from Daghestan, under

Colonel Stolietoff, occupied and fortified Krasnovodsk, founded Michailovsk and held the Balkan mountains, nominally to protect the friendly Jomuds against the Tekke Turkomans. In 1870 the Tekkes attacked Michailovsk, but were driven back with loss. This incident was followed by the revolt of the Adajef Kirghese and the destruction of two Russian fishing settlements. The whole district was then declared by the Russian Government as part of the Caucasus, and placed under the jurisdiction of the Caucasian authorities. In November 1871 Colonel Markusoff, who had superseded Stolietoff, penetrated to Chikishliar on the south-east coast of the Caspian, where his camp was attacked at night by the Tekkes. This gave an excuse for fortifying Chikishliar, which has since remained in the possession of Russia, and now forms her southernmost station on the Caspian Sea. The whole east coast was then in her hands; but she could not advance farther to the south without violating Persian territory. Her onward movement, resembling very closely the slow but constant encroachments of the sea; followed, like the sea, the line of least resistance. Russia was not yet prepared to attack Persia; and her energies were consequently directed in the meantime to the reduction of Khiva and the subjugation of the Tekke Turkomans. In 1872 extensive reconnaissances were made up the Osboi with the object of finding a road to Khiva. Markusoff had penetrated in the September of that year to the Wells of Igdy, when he was attacked by the Achal Tekke Turkomans. The success of the Russians in this engagement enabled them to march on the return journey south-west by way of Kizil Arvat and Beurma, ravaging the territory through which they passed. In the Khiva expedition of 1873, Colonel Markusoff, as has been said, was forced to lead back his detachment to Krasnovodsk owing to the scarcity of water in the desert; but this movement he effected without losing a single man.

For a short time the fall of Khiva awed the Tekke Turkomans into quiescence; and their chief, Nur Verdi Khan, entered into negotiations with General Lomakin in Krasnovodsk with the object of placing his territory under Russian protection. In October 1874, however, an attack was made on the "friendly tribe" of Yomuds, and this gave occasion for a renewal of hostilities. For the protection of the caravan route to Khiva, Lomakin resolved, in 1877, to occupy the fortress of Kizil Arvat in the Achal oasis, and this he was able to do with a comparatively small force. Before, however, he had time to strengthen his position, he was attacked and defeated by a large Turkoman army. In the following year he again assumed the offensive, occupied the position of Tchat, at the junction of the Schumbar with the Atrek, and there built a fort. Renewed requests were then made by Tekke ambassadors for Russian protection; but the negotiations were again suddenly broken off, and Nur Verdi Khan attacked Tchat with 10,000 men. He was unsuccessful; and the Russians resolved to prosecute their advantage by an energetic advance. Their policy had, up to that time, been "passively offensive," if we may use the phrase They had crept forward, gaining a few miles at a time, but without making any determined attempt to break the resistance with which they were met at every point. Their advance, in fact, had been made by a series of very short rushes. When driven back from Kizil Arvat, they were content to occupy Tchat, although they thereby lost nearly 100 miles. It was now, however, decided to assume an energetic offensive, and subdue the whole of the Achal oasis at one blow.

With this object, the first great expedition was organized under the Caucasian General Lazaref, with Chikishliar as the base of operations. After long and tedious preparations, the advance was commenced, late in June 1879, with 4,000 men. On 13th July, General Lazaref died, and the chief command devolved upon General Lomakin. Geok-Tepe, the stronghold of the Turkomans, was attacked on 28th August, but the Russians were driven back with considerable loss, and General Lomakin was forced to retreat as best he could to Krasnovodsk. The Achal Tekkes, who were now joined by the inhabitants of the Merv oasis, became more than ever formidable.

The next Russian expedition was planned on a considerably larger scale. Not only was the number of men more than doubled, but it was decided to build a railway from the sea to the fringe of the oasis, both to aid the advance and to secure the retreat of the expeditionary force. General Skobeleff was placed in command of the troops, and General Annenkoff, who afterwards built the far larger railway into the heart of Asia, was entrusted with the construction and administration of what was then regarded as a more or less temporary or provisional line.

The Russians did not resume the offensive until December 1880, when the advance of the whole expeditionary army, numbering 10,000 men, was begun. Geok-Tepe was reached on 1st January 1881, without serious opposition. The fortress, in which nearly 40,000 Tekkes found refuge, was encircled by two mud walls at a distance of fifty feet from each other, protected by a ditch in front, and provided in the rear with a raised platform for the defenders. The Turkomans and their families occupied kibitkas sunk into the ground and covered with earth to a considerable depth as a protection against shot. General Skobeleff, despite his well-known dash, found it impossible to attempt an assault, and preparations were made for a regular siege. The first parallel was cut on 4th January; and, despite the most heroic sallies of the besieged, the work went steadily,

German system, of which he made a thorough study. The peculiar conditions of service in the Russian army, however, rendered anything approaching to an exact copy of the German organization impossible. In Germany, the recruit joins the railway regiment at the commencement of his term of service; and this plan, owing to the extremely high standard of education, answers extremely well. In Russia the case different. The mass of the recruits are almost entirely uneducated, and before joining their special corps, it is found necessary to give them eighteen months' or two years' training in the most elementary movements. Furthermore, only men of superior intelligence, or those who have previously been connected with the railway service, are selected for these battalions. They are, therefore, at once soldiers and skilled workmen. When their term of service expires they find, as a rule, situations on the various railways of the Empire, and are always available, on mobilization, to form the nucleus of a new corps, or to fill vacancies in existing battalions.

Until the beginning of the present year, the regulations affecting the organization of the Russian railway troops dated from November 1876, when one railway battalion was formed. Two new battalions were raised in 1877, a fourth in 1878, a fifth (at first called the reserve battalion, afterwards the first Transcaspian battalion) in 1880, and a sixth (the 2nd Transcaspian battalion) in 1885. By the advice of the Superior Council of War, the Czar authorized last year the provisional reorganization of the railway troops on wholly new lines. The measure took effect on 1st January last, and is to hold good for five years from that date. By its provisions, the European railway battalions, which have hitherto been brigaded with Engineer battalions, are henceforth to form an independent Railway brigade, for which a staff has recently been created. The strength of each battalion is fixed as follows:—

PEACE.—25 officers, 3 classed officials, 625 non-commissioned officers and men, 10 draught horses, and 42 transport vehicles.

WAR.—25 officers, 5 classed officials, 1,112 non-commissioned officers and men, 81 draught horses, 4 saddle horses, and 42 transport vehicles, During peace, 5 of the 18 subaltern officers of each battalion are employed on the State railways.

A railway battalion consists, in peace, of 5 companies (2 for construction, 2 for working, and 1 of cadres for the formation of reserve companies on mobilization); in war, of 4 companies. The company effective is 123 non-commissioned officers and men in peace, and 260 in war. These figures include 8 or 10 men "without arms," consisting principally of orderlies and clerks. The cadre company comprises 101 non-commissioned officers and men, including 8 "without arms." It would form, in war, 4 companies of reserve—3 for working and 1 for construction. Excluding the two battalions in Central Asia, the Russian army possesses, therefore, in peace, 4 railway battalions of 20 companies and 2,372 men; in war, 4 field and 4 reserve battalions, with 32 companies and 8,320 men, in each case excluding officers. Of these, 8 working and 8 construction companies will, in war, form part of the active army; the rest will be employed in the Etappen service.

The construction of strategic railways went hand-in-hand in Russia with the formation of special railway battalions. The first railway built provisionally for strategic purposes was constructed before Balaklava during the Crimean War. In the American War of Secession, military railroads played an important part; and their *rôle* was still further extended by the Germans in 1870-71. General Annenkoff in his *Remarks of a Russian Officer on the War of* 1870–71, lays especial stress on the services rendered to the German army by the construction of a bridge over the Marne within a fortnight; and the provisional communication by railway of Remilly and Pont-à-Mousson, which surrounded Metz, and—24 miles long—was built in 30 days.

From 1871 onwards, the construction of military railways, temporary and permanent, became general in Russia. The first line of the kind was built in 1871 between Krasnoe-Selo and Peterhof, during the grand manœuvres, and afterwards became permanent. Several similar railways were constructed in the following years: In 1880 the Transcaspian railway was begun; and in 1882 a line was built between Shabnisk and Pinsk within 3½ months—a most praiseworthy performance, carried out under very considerable difficulties.

IV.—FROM MICHAILOVSK TO KIZIL ARVAT.

THE first stretch from Michailovsk to Kizil Arvat was, as has been said, a purely strategic railway, built *ad hoc* for the Geok-Tepe expedition of 1880–81. Chikishliar which had been the base of operations under Lazaref, Lomakin and Tergusakof, and had already grown into a relatively large town, was for several reasons considered unsuitable as the terminus of the projected railway. In the first place, Chikishliar has no harbour, but only an open roadstead, extremely exposed to storms, and so shallow that the steamers of the Caspian, despite their light draught, can only approach within five miles. In the second place, the town is 2½° south of Krasnovodsk, and 2° south of Michailovsk, or a full day's journey by steamship farther removed than these places from Baku and Astrakhan.

Krasnovodsk, then the residence of the Governor-General of the district, possessed a splendid harbour aceessible to the largest vessels on the Caspian; but three ranges of hard rocky hills, by which it was cut off from the desert, rendered its selection as the terminus

Tepe campaign as far as Achsha Kuyma, and rendered important assistance to the expeditionary corps, especially in transporting the wounded to the coast, and bringing back the returning troops. On the conclusion of the campaign, the line was extended to Kizil Arvat, where a large depôt was built, and barracks provided for the railway regiment, of which it became the headquarters.

A long pause then ensued, until, in the spring of 1885, General Annenkoff was ordered to extend the line to Merv, and eventually to the Amu Daria.

V.—The Harbour of Uzun-Ada.

During the interval, Michailovosk had been found quite unsuitable as the permanent terminus of the railway. The site had been chosen provisionally and in the greatest haste, without reference to its value as a commercial harbour, or even as a port for large war-ships. The largest steamers of the Caspian, which draw only 9 feet of water, were unable to enter the bay of Michailovsk owing to its extreme shallowness. They were obliged, therefore, to break bulk at Krasnovodsk, whence their cargoes were brought by smaller vessels to the railway terminus at Michailovsk. The voyage from Baku to Krasnovodsk was rapid and easy; but when the latter place was passed, the vessel was obliged to wind a tortuous course through channels dangerously narrow and shallow, abounding in sand-banks and other obstacles. The delays and dangers of this passage necessarily increased the cost of freight from Baku to the railway to a very large extent, and seriously hampered the growing trade of the district.

Two alternative plans were at first submitted. The first, which was not adopted at the time, but which will probably be carried out in the near future, was to continue the railway around the Balkan Bay to Krasnovodsk, a distance of 80 miles, and make the latter the terminus of the railway. The difficulty of cutting through the rocky hills behind the town, and the immense expense it would involve, were still regarded as obstacles sufficient to warrant the rejection of an otherwise excellent plan. The alternative proposal was to leave the terminus of the railway at Michailovsk and deepen the harbour and its approaches by dredging sufficiently to allow the entrance of the largest vessels. It was calculated that for this purpose 40,000 cubic fathoms must be excavated, an operation which not only involved considerable outlay both in time and money, but was by no means certain to attain its object. Careful observation has shown that the sand is thrown up by the sea in great quantities under the action of strong and continuous winds.

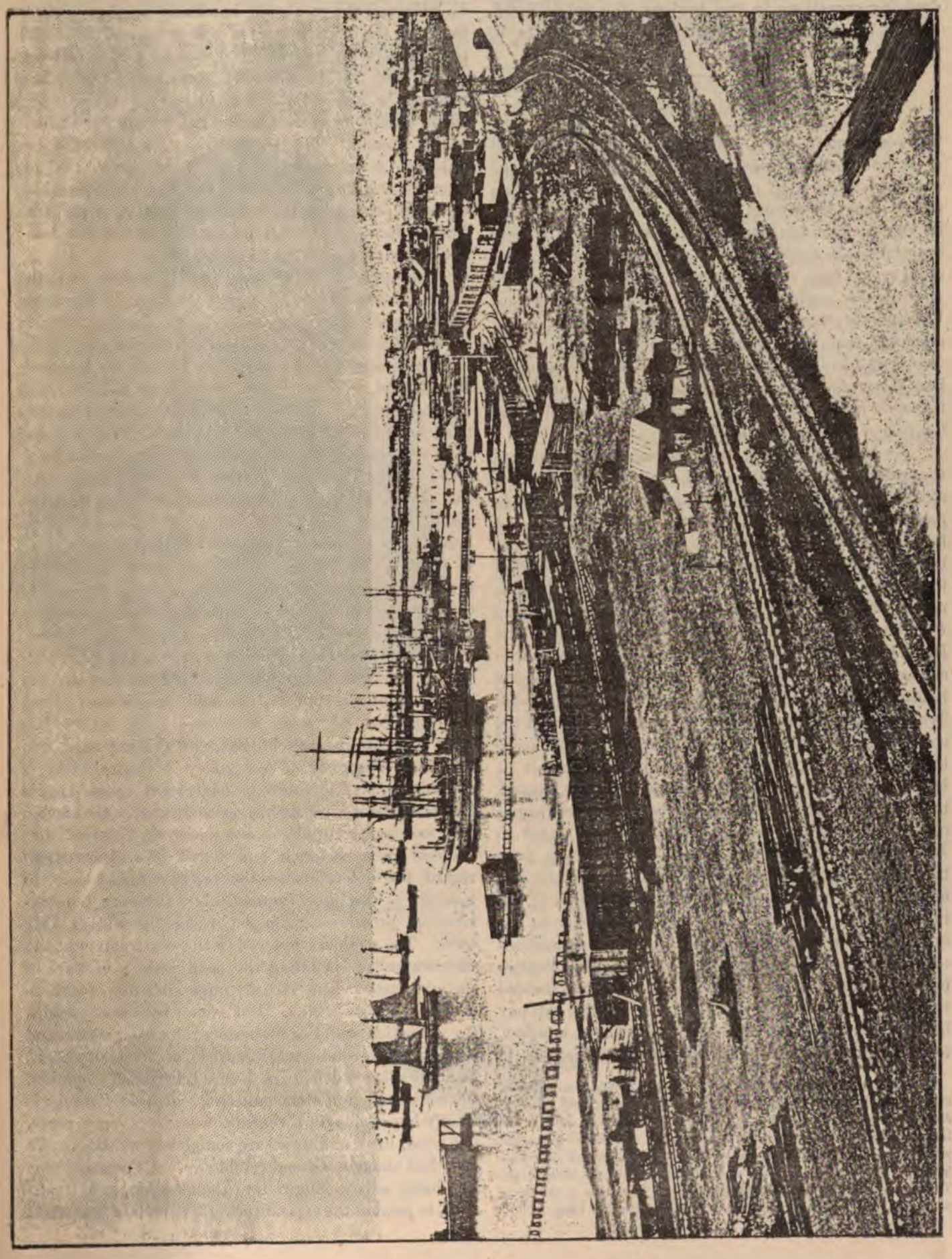
While the authorities were hesitating between these two projects, each of which was open to serious objection, soundings in the bay of Michailovsk had shown that the difficulty might be solved in a comparatively simple and inexpensive manner. It was found that by extending the railway about 16 miles, and carrying the line over a shallow 1 metre deep to the south-western extremity of the island of Uzun-Ada, a depth of 12 feet of water might be obtained. At this place vessels are now able to unload directly on to the railway. The voyage from Baku is now only 18 hours, and the whole journey from Krasnovodsk to Michailovsk, together with the double break of bulk, is saved. This result was obtained by excavating 1,500 cubic fathoms of earth in the approaches to Uzun-Ada, where the depth fell in some cases to 2 feet. In all other places, however, it varies between 10, 11 and 12 feet. In the Caspian Sea only 9 feet are required, as, owing to the prevailing shallowness, no vessels are built with greater draught.

During the exceptionally severe winter 1885–6, the harbour was rendered inaccessible through ice; but this objection would apply with almost equal force to any other part of the coast. A few vessels were caught in the ice and imprisoned until the frost broke up, and others were compelled to return to Krasnovodsk to avoid the same fate. Communication between Krasnovodsk and Baku was suspended for a week, between Krasnovodsk and Michailovsk for a fortnight. The cold on this occasion, however, is said to have been more severe in that region than any experienced during the present generation. An ice steamer similar to that employed between Abo and Stockholm will in future be provided to keep the channel open.

The island of Uzun-Ada is connected with the mainland by a sand-bank 1¼ miles long and 1 metre below the surface of the sea. This bank has been raised above the surface, strengthened in exposed parts by stone and woodwork, and used as a means of carrying the railway over the shallows. The Caspian Sea has no ebb and flow, but its level varies about 1½ feet according to the prevailing wind.

These works were pushed on with so much activity that on 10th May 1886—six months after the commencement of the operations—the harbour and station of Uzun-Ada were open for general traffic. Seven months later, Uzun-Ada had increased to seventy Astrakhan* houses and several large buildings, including the railway station, hotel, hospital, post office, bazaars, &c. From the opening of the harbour on 10th May to the 1st December following, Uzun-Ada was visited by 169 steamships and 190 sailing vessels. The town, that is to say, made more progress in six months than Krasnovodsk in fifteen years. The whole cost of the works did not exceed 455,000 roubles, including the

* The Astrakhan houses cost in all 750 roubles, including the transport of the materials and the small expense of erection.



The Harbour of Uzun Ada.

dredging operations in the harbour, the public buildings of the town, and the construction of the extra 16 miles of railway.

VI.—General Tchernajeff's Attack.

The construction of the Transcaspian railway, like most great undertakings, was vehemently opposed from the outset by a storm of opposition. It was attacked on almost every conceivable ground. Some contended that its construction was impossible; others, that if it were constructed, it would be useless, from a strategic point of view, and that, as a commercial undertaking, it could scarcely be made to pay even working expenses. Perhaps the most important paper on these lines, certainly that which attracted most attention, was contributed to the *Novoe Vremya*, by General Tchernajeff, late Governor-General of Turkestan. We quote the following passages from his letter, which appeared under the title of *An Academic Railway*.

"For some time past the newspapers have reported the opening of a new station, or the completion of another stretch, of the Transcaspian Railway. The public, in reading these reports, may believe that the day is not far distant when the traveller to Tashkend will no longer be obliged to make his way through the shifting sand of the desert, but may take his ease in a comfortable railway-carriage; that the completion of the undertaking will render our position in Asia secure, and that the English will perforce change from insidious enemies into submissive allies. In my last interview with General Skobeleff, immediately before his departure on the Achal Tekke expedition, I asked him why he had sanctioned the construction of the railway, since it would only increase the cost of his expedition. His answer was 'Let it be built, or we shall only make enemies. I know, myself, that I shall finish the expedition before the railway is completed.' And so it was; the expedition ended in January 1881, and the first stretch of the railway, from the sea to Kizil Arvat, was not finished until the following antumn. In order to justify the construction of the railway, which did not render the least service to the expedition,* and which, in addition to the millions originally expended, now requires half a million roubles per annum for its working, the War Minister has decided to continue the work, in the hope that the line will pay better as it is extended. The authorities forgot, however, to thoroughly prospect the country through which it is to be laid; and the result will inevitably be that it will be buried in the drifting sand of the desert. The breadth of the desert through which the railway is expected to cut is from 225 to 250 miles, over 60 of which it is madness to attempt the construction of a line. The whole country from the Caspian Sea to the Syr Daria is a sea of sand. The Amu Daria cuts this otherwise waterless desert into two nearly equal parts. In this immense territory there are three oases; Khiva, whose existence depends on the artificial irrigation of the Amu Daria; Merv, which owes its fertility to the Murghab; and Bokhara, due to the Sarafshan.

"Free access to these oases is only possible from the north and south of the Caspian Sea; and in these two directions alone, therefore, is an improved communication between Russia and Central Asia conceivable.

"The southern route would lead by way of Astrabad, Budschnurd, Shirwan, and Meshed to the Murghab valley, thence in a northerly direction to Merv, or easterly from Anchoi to Kerki, on the Amu Daria. The first and most accessible portion of the route is on Persian territory; the other part we evacuated to the English after the victory of General Kommaroff at Penjdeh. The result, therefore, of our most recent action in central Asia, is the conquest of the Merv oasis, the approaches to which are in foreign hands. In order to ensure a direct communication with Merv, we have decided to construct a railway across the circumvening deserts to Bokhara and Tashkend.

"So long as the construction of the Transcaspian railway was limited to the deserts around the Caspian, the execution of the project appeared practicable. Now, however, that 300 miles have been built, the line has come to an abrupt stop in wastes of shifting sand, and the whole absurdity of our policy in Central Asia is apparent . . . The result of our recent concessions is that our prestige in Asia has seriously sunk. God forbid that we may occupy the same position in Bokhara that we now do in Belgrade and Sofia! We (Tchernajeff) regard the extension of the railway from Merv to Bokhara as absolutely impracticable, although the constructors promise its completion for the end of July 1886. The method employed in the construction of the first few miles—puddling the sand with a mixture of clay and water—is necessarily impossible now, for there is neither water nor clay. But even if both were present, the protection would be absolutely valueless against sand carried by the wind over hundreds of versts of desert. The only efficient defence is, in our (Tchernajeff's) opinion, the construction of stone galleries, which in its turn is wholly impossible in a country where not only stone, but wood, lime, and water are completely wanting. We have had enough of blind confidence. A Commission is now being sent to inquire into the question, and, if possible, to prevent the expenditure of hundreds of thousands

* Dr. Heyfelder replied to these assertions by pointing out that the railway from the sea to Molla Kary was opened in October 1880, and from Molla Kary to Atscha Kuyma in December, when it was used for the transport of infantry, artillery, and hospital train. The line to Kasanchik was finished in February 1881, and served both to bring back the troops from the front, and as a means of sending the wounded to the Michailovsk. The expedition ended in the beginning of May The order of the day in which Skobeleff took leave of his troops is dated 16th May 1881.

THE RIFLE REGIMENTS.

By AN OFFICER OF THE STAFF.

PART II.

IN our last number we cited the main instances in which Parliament took exception—or specially legislated for the employment of foreigners, we will now turn to the recorded "home services" of the 60th Regiment from the time of its formation in 1756, until it was made a British regiment in 1824. For many years after its formation it served continuously in America and the West Indies, but in 1775–76, we find "England" entered as the station of a portion of the regiment. This might naturally lead a casual observer to infer that the regiment was serving England in these years, but as a matter of fact it refers only to the 3rd and 4th Battalions, which were raised in England at that time, and despatched to the West Indies.

A precisely similar case is that of 1787–88, when "England" * again appears as one of the quarters of the regiment. In this case it is on record that the battalion raised was composed almost entirely of foreigners,† and in consequence of being unable to serve in England, it was sent out to the West Indies.

In 1793, the 3rd Battalion, at the time serving in the West Indies, was drafted into the 4th Battalion on the same station, and the staff sent to the Channel Islands where the 3rd Battalion was re-formed and sent back to the West Indies.‡

A similar process was apparently carried out with the 4th Battalion, which is recorded as moving to Guernsey in 1796, and returning to America in the following year, when the 1st Battalion was drafted into the 2nd Battalion at Quebec, and re-formed again in Guernsey, whence it was sent out to the West Indies in 1799.

It is doubtful whether in any of these instances the law of the land prohibiting the bringing of foreigners to serve in the United Kingdom was infringed, as in every case the cadres only of the battalions appear to have been brought home, and as soon as they were completed up to their strength, they were despatched to the West Indies. It is also quite possible that the "staff" of the 3rd Battalion consisted of British subjects.

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We now come to the case of the 5th Battalion, which when composed of only 400 of Hompesch's disbanded regiment was sent to Ireland. It did good service at New Ross and Vinegar Hill on June 21st, 1798, and embarked in January 1799 for the West Indies.*

The preceding are the only instances in which we find a battalion of the 60th serving in the Channel Islands or Ireland previous to the year 1803. No battalion was allowed to come to England until after an Act had been passed in that year, whereby a limited number of foreigners were permitted to serve in the United Kingdom as long as the war lasted.

The extraordinary national emergencies of the early part of this century would, however, account for much greater irregularities than those which we have related, and a study of the situation in 1805–1810 will show that the British forces were in a constant state of being hurried from point to point of the globe, to protect fresh interests assailed, to guard against a possible invasion, or descent upon our coasts or islands, or to act as expeditionary forces against the enemy. To these same disturbing factors may we account for the 60th Regiment, specially enlisted for service in America, being brought to the Channel Islands, and used in Ireland and in the Peninsula.

In these troublesome times it was unsafe to despatch regiments in transports without some men-of-war as escort; hence we commonly read of them being detained for weeks and months awaiting the assembly of a convoy. Thus, on September 30th 1805, the 4th Battalion landed at Portsmouth (its first appearance in Europe since it was raised, and was detained at Lymington until the following August, when it embarked for the Cape of Good Hope. This sending of a battalion of the 60th to the Cape in 1806, is the first instance we have on record of its being despatched to any station out of America.

This battalion remained at the Cape for a very short time, for we find it on its return voyage in 1811, when it landed at Portsmouth, and was quartered at

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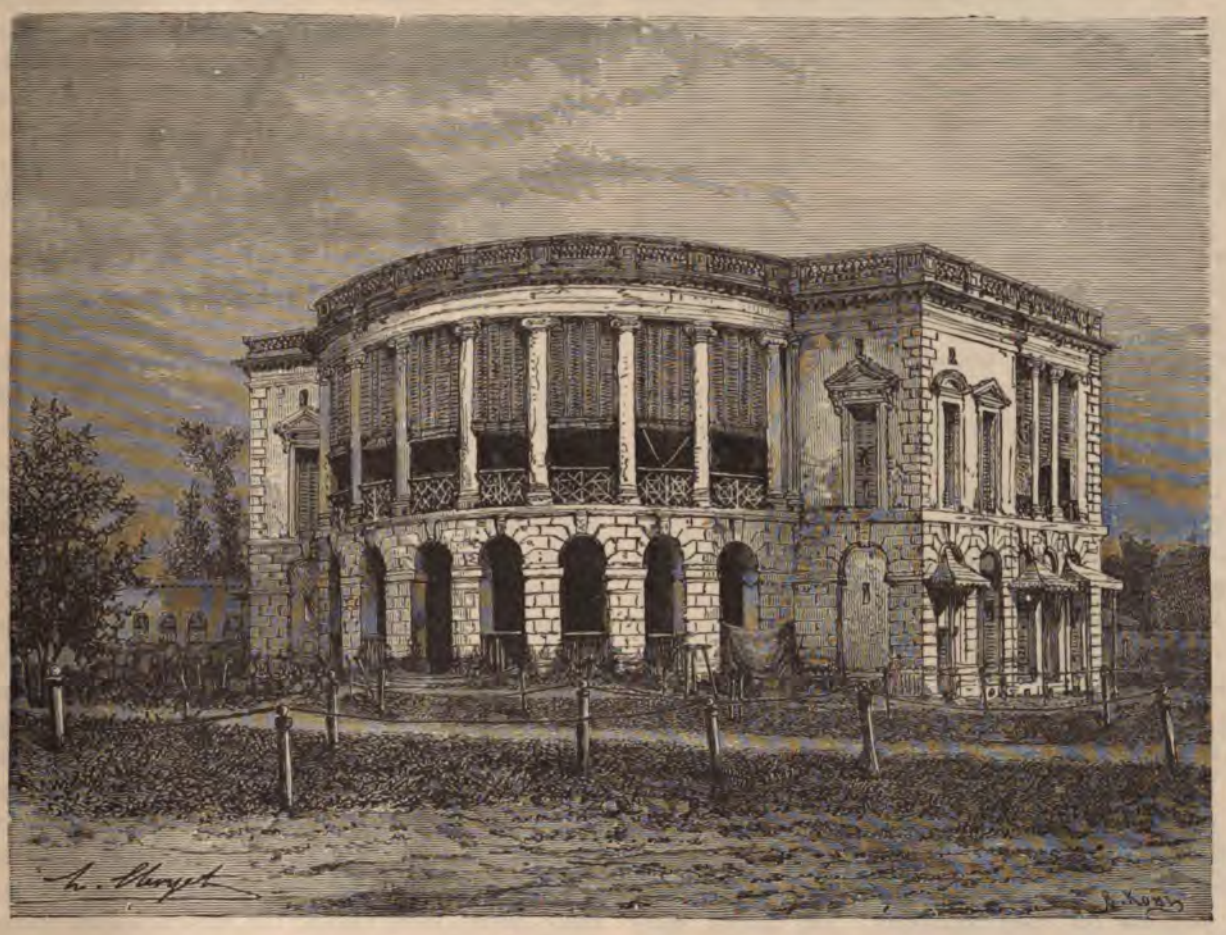
this feeling was much accentuated when the Trades Association, the Masonic Lodges, the Native Christian community, desired to be armed, and disciplined and organized after the manner of soldiers; and, side by side with our own compatriots and fellow-subjects, the representatives of the great French and American nations sympathized with us in our distress. Lord Canning told them in reply, "that they might enrol themselves as special constables"! Had the offer of the Calcutta citizens, made on the 20th May been accepted, it would have disengaged for immediate action the wing of a regiment. The 84th Regiment was detained motionless near Calcutta until the 20th May, whereas, had it been despatched on the 6th, its presence would probably have prevented the outbreak at Cawnpore. The reason why the Government did not act with promptitude and decision is explained by Mr. Secretary Beadon in his letter to the French residents at Calcutta: "Everything is quiet within six hundred miles of the capital. The mischief caused by a passing and groundless panic has, fortunately, been arrested; and there is every reason to hope that, in the course of a few days, tranquillity and confidence will be restored throughout the Presidency." Malleson says: "The hope which existed was, in fact, without reason." The week that followed the 1st of June gave Government their first awakening. Intelligence reached Calcutta of the mutiny at Lucknow, of the defection of all the regiments occupying Oudh, of revolts at Azimgarh, Benares, and Allahabad, of the massacre of the Europeans at Jhansie. About this time several European regiments arrived in Calcutta which were rapidly sent up-country with a view to save the threatened line. While Government were despatching every available European soldier up-country, Lord Canning refused to disarm or disband the native regiments at Barrackpore and Dinapore, because he feared that such a measure would exasperate the Sepoys at other stations, where there were no white soldiers to protect the Christians from their vengeance. Further, the Government reported to the Court of Directors their belief that a public profession of loyalty, made by the 70th Regiment of Native Infantry, then stationed at Barrackpore, would "have the happiest influence on the minds of all well-disposed men in the native army." They, therefore, allowed three and a half native regiments at that station to retain their arms. To the 6th Native Infantry, at Allahabad, on the eve of a revolt accompanied by marked barbarity, the Government sent, at the same time, their acknowledgment of a similar profession. They would not believe the fact that was patent to all around them—the fact that the entire native army was animated by but one feeling, and that the mutiny of a regiment was merely a question of time and opportunity. Another statesman, one who knew India well, took a decidedly opposite view to Lord Canning John Lawrence argued that it was necessary to disarm his regiments becaus no Sepoy's profession of loyalty could be trusted. "If it was unfair (writes Holmes) to blame Canning after the event had proved him wrong, it was unfair to praise Lawrence after the event had proved him right. Canning had not yet grasped the great truth that a handful of Englishmen could only hold millions of Asiatics in check by boldly taking the initiative against them, and trusting that they would be too terrified to perceive the absence of a material force sufficient to support the uncompromising assertion of authority. Many reasonable excuses have been made for Lord Canning's failure, but history refuses him the title of a great statesman, because others who had fewer resources than he, needed no excuses."

The citizens of Calcutta were not the only friends, whose offers of assistance Canning set at nought. The kingdom of Nepaul was at that time virtually ruled by the famous Jung Bahadoor, a very unscrupulous but very sagacious minister, who, knowing England well, had a firm faith in the resources of the British power. He made an offer to Major Ramsay, the Resident of Khatmandoo, to lend a body of Ghoorkhas to the British Government. The Resident took upon himself the responsibility of accepting the offer, and wrote to Lawrence and General Lloyd, the Commander of the Dinapore Division, informing them that he was prepared to send detachments to their aid.

On the 15th June, the first detachment, a thousand strong, marched from Khatmandoo. Only two days later, however, the Resident received an express from the Foreign Secretary, ordering him to recall the Ghoorkhas, if they had not passed the frontier. Ramsay obeyed. In recrossing the pestilential belt of jungle (the Terai) which stretched along the base of their hills, they suffered grievously from sickness; but the vacillation of Canning condemned them to undergo the same trial again; for hardly had they reached Khatmandoo, when he ordered the Resident to ask Jung Bahadoor for three thousand men to be sent to the aid of Lawrence. From the time when Secretary Beadon returned his memorable reply to the address of the French Resident of his intact line of six hundred miles, the English newspapers in Calcutta persistently urged Canning to retract his refusal of the offers of the volunteers. Mr. T. P. Grant's practical advice to Lord Canning induced him to avail himself of the aid which had been proffered, three weeks earlier, by the citizens of Calcutta. In order to induce the Governor-General to agree to this tardy concession, Mr. Grant wrote a letter describing the facts as they really were. In it he wrote: "In reality as well as in appearance we are very weak here, where we ought to be—and if we can't we should appear to be—as strong as possible. We have as enemies three native regiments and a half, of which one and a

half are the very worst type we know; one, two, three, (for no one knows) thousand armed men at Garden Reach, all available there at a moment; some hundred armed men of the Scinde Ameers at Dum-Dum; half the Mahomedan population, and all the blackguards of all sorts of a town of six hundred thousand people. Against these we have one and a half weak regiments, most of whom dare not leave the fort. There is no reason to expect real help in real danger from the native police. The insurrection is regularly spreading down to us. Is this an emergency or not? My conviction is that even a street row at the capital would give us an awful shake—not only in Bengal, but in Bombay and Madras—at this moment."

Malleson, in referring to the reluctance of Lord Canning to take his own countrymen into his confidence, or to admit that he had the smallest occasion for their aid, says, "Now one of his colleagues, and incomparably the ablest, pressed upon him in language more clear and more forcible than any used by the Press, the dangers of persistence in the same policy of distrust. He clenched it further by recording his opinion that it was probable that, if a Volunteer corps were not raised in the crisis then before them, the Home Government would ask the reason why." Lord Canning then sanctioned the enrolment of the citizens of Calcutta as Volunteers, though still retaining his opinion as to their worthlessness. The Gagging Act was then introduced by Lord Canning, who went down to the Legislative Council, and declared there that the incendiary tone of the native press necessitated his bringing forward and carrying a measure to place it under the severest restrictions. Then Lord Canning proceeded to include in the same measure of stern repression, the English Press. "Never," writes a contemporary, "since the days when Prynne had his nose slit and his ears cut off for publishing the Histriomastix, had any act of an English statesmen been received with a greater burst of indignation than that which greeted the announcement of this measure. Had such a restriction been proposed by a Government in which they had confidence, they would have borne it patiently. But the community did not hesitate to say that Canning and his advisers, conscious that they had committed great errors of policy, were resolved to prevent information of those errors from being transmitted to England."*



CALCUTTA—HOUSE IN THE EUROPEAN QUARTER.

* *Vide Friend of India*, June 1857; *Red Pamphlet*, &c.

On the night of Saturday the 13th June an express arrived at Government House from General Hearsey, stating that the Sepoys at Barrackpore had conspired to rise in the course of the night, and that he had sent for the 78th Highlanders who were at Chinsurah, to disarm the suspected regiments if the measure were approved by Government. The sanction to the disarming was reluctantly given. On the evening of the 14th June the native regiments at Barrackpore were disarmed as well as the Sepoy Guards at Calcutta, Fort William, and Dum-Dum.

On this day, known in history as "Panic Sunday," there was great excitement in Calcutta. It was reported that the Sepoys at Barrackpore had risen in the night, and soon the rumour ran that they were in full march upon Calcutta, and it was also bruited abroad that the Oudh people at Garden Reach were to rise at the same time, and join in the threatened massacre of the Christian people.

Very contradictory reports are given as to the bearing of certain portions of the European community on this eventful Sunday. The author of the *Red Pamphlet* states that among the most panic-stricken, "There were Secretaries to Government running over to Members of Council, loading their pistols, barricading their doors, sleeping on sofas; Members of Council abandoning their houses with their families, and taking refuge on board ship; crowds of lesser celebrities, impelled by these examples, having hastily collected their valuables, were rushing to the Fort, only too happy to be allowed to sleep under the Fort guns."

Dr. Mouat writes he had never witnessed "a scene of such utter abandonment." The *Friend of India*, June 18th, 1857, states: "The infection of terror raged through all classes. Chowringhee and Garden Reach were abandoned for the Fort, and the vessels in the river. The shipping was crowded with visitors, and in houses which were selected as being least likely to be attacked, hundreds of people gladly huddled together, to share the peculiar comforts which the presence of crowds imparts on such occasions. The hotels were fortified; bands of sailors marched through the thoroughfares, happy in the expectation of possible fighting and the certainty of grog. Every group of natives were scanned with suspicion. . . . Many years must elapse before the night of the 14th June 1857 will be forgotten in Calcutta."*

It is pleasant to record that "nothing could exceed the courage and steadfastness of the members of the mercantile and trading community." Had they not already shown, when their services were accepted by Government their loyalty and courage, by sacrificing all private considerations to the good of the State? Heedless of scorching suns and drenching rains, they voluntarily submitted to the labour of drill and discipline, and formed themselves, under the able guidance of Orfeur Cavanagh, the Town Major, into a powerful brigade which ultimately earned the hearty commendations of Sir Colin Campbell.

The next event at Calcutta was the arrest of the King of Oudh who was removed from Garden Reach to Fort William, thereby rendering his armed followers powerless for mischief. Another element of danger was supposed to have been discovered, in the fact that there had been a large importation of arms into Calcutta, and that the natives of the capital and of the surrounding districts were purchasing them freely from the shopkeepers not disinclined to make money by the crisis. This circumstance with other similar reports induced a number of the Christain inhabitants to appeal to the Government to disarm all the natives in the place. To this a reply was given, two days afterwards, that it was not intended to disarm any class of the residents of Calcutta or the neighbourhood, that sufficient precautions had been taken for the safety of the city and that a General Arms Bill was under consideration.

On July the 20th a deputation of Calcutta merchants waited on the Governor-General and represented the vast amount of interest at stake in Tirhoot, and earnestly solicited the disarming of the three native regiments at Dinapore. They pointed out how this might be easily effected, and how a steamer conveying a European regiment might stop three hours at Dinapore, while the men, aided by Her Majesty's 10th Foot, performed the operation. In vain—not an hour could be spared; troops were so urgently required elsewhere; for this or for some other equally powerful reason the recommendation of the Calcutta mercantile community was refused by Lord Canning, and the Government at Calcutta were mainly responsible for the mutiny at Dinapore. Had their advice been taken, the troops would have been delayed three hours and gone on their way rejoicing. Because it was not taken, those troops and others whose services were urgently required in the north-west were detained in the Behar district for a considerable time.

The final measure contemplated by Lord Canning about this time (July) filled to overflowing the measure of his unpopularity. On the 13th of July the Grand Jury suggested the disarming of the native population, but Lord Canning disarmed both Europeans and Natives, although the Act contained a proviso under which it was possible for any man to apply for a licence to carry arms. The next important incident at the City of Palaces was the arrival of Sir Patrick Grant, an officer whose previous career and many and varied services

* Kaye refuses to accept the charges of cowardice made against high officials by contemporary writers as proved; but Malleson, on whose authority I have made the statement in the text, says that he was prepared then, as he is now prepared, to name, had he been called upon, the individuals to whom he referred. (*Vide Red Pamphlet*, p. 105).

seemed to justify Lord Canning in regarding him as the man for the situation. But though he had proved himself a cool-headed soldier in the bloody combats with the Seikhs, Sir Charles Napier had said of him that he was only fit to command a Division.* He was now called upon to command an army, and to suppress a rebellion. But he declined the honour which was thrust upon him. While Delhi was still in the hands of triumphant mutineers, while from a hundred stations his countrywomen were uttering a despairing cry for help, he declared "that the Commander-in-chief can most efficiently, and assuredly most expeditiously, control and direct all military movements now, *and re-organization and regeneration of the army hereafter*, if he has had the advantage of being in personal communication with the head of the Government," and thus best serve his country by taking up his abode in Government House and there directing on paper the movements of the troops whose glory he refused to share. Sir Patrick Grant gave other reasons to justify his decision to remain in Calcutta, one of which was that he would need a complete regiment to escort his papers. (Malleson.) But in declining to take the field he performed a service which his countrymen appreciated more than his designs for the direction of the campaign or the re-organization of the army. For the Officer he selected to act against the rebels and mutineers was Brigadier-General Havelock. Malleson, in speaking of him, says, "he bore a strong resemblance to the most capable of the Marshals of the first Empire, the illustrious Masséna, of whom Napoleon thus wrote: 'His conversation gave few indications of genius, but at the first cannon-shot his mental energy redoubled, and when surrounded by danger his thoughts were clear and forcible.'" General Havelock left Calcutta on the 24th of June—what he accomplished with his army, and how he accomplished it are matters of history.

On the 1st of August, Outram appeared in Calcutta fresh from his Persian triumphs; the Madras Native Infantry Regiments began to arrive, and were soon followed by Captain William Peel and Captain Sotheby with their naval brigades; and on August the 13th, Sir Colin Campbell, with his Crimean honours thick upon him, came and took up the office of Commander-in-Chief, with the warm approval of the army, who knew him as "the war-bred Sir Colin," Sir Charles Napier's lieutenant and friend. Finding nothing had been done by the Government before his arrival for the equipment of the expected reinforcements or for their transport to the seat of war, Sir Colin Campbell lost no time to supply these deficiences. He roused sluggish departmental officials to bestir themselves. He caused horses to be purchased for the cavalry and artillery; ordered guns to be cast, gun-carriages, harness and tents to be made up, and rifle-balls to be manufactured and procured from England; sent for supplies of flour from the Cape, and engaged English-speaking servants for the expected European regiments from Madras. Finally he contracted for the transport of the troops from Raneegunge in bullock-waggons, and provided for their security by sending small movable columns to keep the road clear. This scheme was soon brought to perfection and was made to work so as to land daily in Allahabad 200 men fresh and fit for work conveyed in the space of a fortnight from Calcutta. On the 27th of October, having seen all the troops that had arrived duly sent on their way, he started himself with his staff from Calcutta. Near Shergotty he narrowly escaped falling into the hands of a party of the mutineers, and on the 1st November reached Allahabad. Calcutta was now safe; troops were daily arriving, and confidence was restored.

This is not the place to discuss the qualities possessed by Lord Canning to fit him for the post of Governor-General. It was ever his aim to do his duty, and he died for his country as honourably as the bravest soldier who had perished on the field of battle.

The disaffection of the 19th Regiment of Native Infantry was the small cloud no bigger than a man's hand, which portended the storm which burst over the Bengal Presidency. But though we now know that there was concert and conspiracy, though we have before us the proof positive, in many atrocious murders, that the mutiny in Bengal had long been organized, not a single department of the English Government has ever been able to give us the slightest clue to the origin of that mutiny. The fidelity of a hundred years was violated without premonitory note, and nobody knows what led to this calamity.

J. C. D.

* *Life of Sir C. Napier*, vol. iv. p. 202.

TWO FAVOURITE RESORTS OF THE CHANNEL SQUADRON.

By ARTHUR M. HORWOOD.

WE have passed Belem, the Gravesend of the Tagus—the point at which the majesty of the law asserts its dominion by injecting into all incoming shipping a myrmidon with a short, brass-hilted sword, and a carpet bag—the rapacious powder-boat has required us to "stand and deliver" every ounce of explosive material we possess; the river-guard having received satisfactory assurances as to our bill of health, granted pratique, and we are again breasting the rapid stream of *el Tejo* towards the anchorage before Lisbon proper, when a breathless quarter-master comes hurrying aft with an intentness of purpose that attracts general attention. He shapes his course for the ensign halyards at the stern, which he quickly loosens and holds fast in his grasp, while directing an expectant eye towards the bridge. He has not long to wait; a signal is conveyed to him, and, acting instantly thereon, downwards comes fluttering the blood-red bunting towards the deck; a momentary pause on its journey, and back it travels to the gaff, as, dwarfed into insignificance, we sweep by a fleet of towering, majestic war-vessels, glistening and shining, black, white, and yellow, each in turn acknowledging our salute with a similar obeisance, given with a promptitude and precision that call forth the admiration of our performer.

It is the British Channel Squadron, enjoying a period of relaxation from the buffeting with the elements on the deep; a reprieve from the drench of spray and rain, the chill of biting nor'westers, the anxiety and strain of the look-out through dark nights and thick weather, and the comfort of being "as steady as a church" after the heavy "send" of the Bay of Biscay and the unpleasant pitching in the chops of the Channel—it is the month of January, remember.

But here in the city of Ulysses winter is "deck'd with a smile,"—not but that on an occasion it can wear a frown (and Lisbon under an overcast sky presents a strangely desolate spectacle), but the prevailing order of things is warm sunshine and bright skies. The glittering white panorama that stretches right and left is viewed through an atmosphere of September-like transparency that causes the voyager who has left London four days previously, enveloped in snow and fog, to imagine the sea-trip has sharpened his powers of vision. It conveys minute sounds from the shore with a distinctness that seems supernatural, and altogether tends to suggest the phenomenon of a working model of a city, such as we see at industrial exhibitions, with the glass case removed.

The illusion is dispelled by the knots of native boatmen, who persistently solicit your patronage; urge upon you the advantage of committing yourself to their care, by which act they are transformed into the humble medium of your being enabled to personally inspect the sights of Lisbon, to enumerate which would occupy pages, commencing with its wealth of ecclesiastical edifices, the fifteenth-century tower of Belem, the Monastery of Sao Jeronymo, the quaint public walks and squares—Praça Dom Pedro, with its unique paving, apparently devised by some perverted ingenuity of man to promote dizziness in promenaders,—the horticultural beauties of the gardens of S. Pedro d'Alcantara; and its streets, or ascents and declivities as they might more properly be called—a Canadian would pronounce them excellently adapted for tobogganing.

An hour's ramble about the old portion of the city will try anyone but a first-class pedestrian. Where the roof of one terrace forms, as it were, the gardens of another row of domiciles, it may be inferred its gradients are very pronounced indeed. The result is a series of picturesque effects receiving additional charm from the abundant foliage that intercepts the chalk-white walls. In this quarter of the town vehicular traffic is well nigh impossible; hence about these labyrinths of tortuous thoroughfares there exists a dreamy quietness, a *dolce far niente* suggestive of romance and poetry. To pass beneath a balcony in one of these stilly sunlit streets, from whence proceeds a thrilling silvery voice, accompanying a tinkling musical instrument, is to fall into a Byronic rhapsody; to observe a Lisbon youth pacing the shady side with impatient step and restless mien is to imagine a lovelorn swain, eagerly expecting a tiny *billet-doux* to flutter down like a dove from a lattice high above ('tis sheer nonsense, of course, to suppose for an instant that the old gentleman with a gouty foot who joins him a minute later and requires the assistance of his arm to walk is the object of his solicitude); while the very voices of the street criers are sensible to the softening influence of the surroundings.

On the other hand Lisbon has its turbulent, flowing arteries for those who prefer noise and bustle. Gaudy tram-cars, drawn by mules that awake recollections of the southern suburbs of our own great metropolis, follow the course of the river to Belem; jingling open flies, souvenirs of Pegwell Bay and Margate, rattle along the

Rua do Ouro; now it is a lowing team of oxen; now a heavily-laden van from the custom house, or a lumbering tumbrel from the arsenal; and the intensity of manner, and severity of gait pertaining to the throng, duly impress one that a truly overwhelming amount of business is being transacted.

The throng is composed of a heterogeneous compound of jetty-imperialled cavaliers in "billy-cock" hats, muscular Gallegos, bare-footed labourers, high-shakoed, military, and swarthy fish-wives. The citizens for the most part exhibit in their countenances an air of dignified grandeur quite in keeping with the claims for distinction of their capital. They are proud in the possession of one of the most picturesque cities in Europe, a Chamber of Deputies elected by themselves, of an opera-house wherein Gayarre, the famed Spanish tenor, does not disdain to warble his dulcet notes, and of a bull-fight ring that their sense of civilization has humanized and divested of the barbarous cruelty that characterizes the performance in the sister country.

With equal reason, perhaps with more, they might boast of the astounding pedigree of their fair city. They can tell you on the authority of divers historians that it was founded as far back as 3,259 years B.C. by a great-grandson of Abraham, or, should you prefer it, and this tradition obtains credence more generally, that it owes its reign to Ulysses, King of Ithica, journeying thither on his return from the war in Troy; and that from the aforesaid monarch it received the designation of Olisipo, a name which it bore up to the time of the conquest by the Romans.

In contravention to the foregoing traditions, other sources assert that Ulysses never set foot in Lusitania. According to Pliny, the first inhabitants were Turdulos; to other celebrated writers they were Chaldeans and Babylonians or Hiberians, flying from the tyranny of Nimrod, king of Babylon, about the year 1900 from the beginning of the world. Lisbon was successively in possession of the Carthagenians, Venetians, Greeks, and Romans. These last people held the city for six hundred and seven years. Cæsar himself favoured it with the title of *Felicitas-Julia*, and with a municipal government. It has borne the yoke of the Moors until freed with the assistance of the Crusaders, and in 1580 it passed into the hands of the Spaniards up to the year 1640. It has suffered terribly from time to time from earthquakes, notably the memorable disaster of 1750 that was immediately followed by calamitous conflagrations causing the death of more than 40,000 inhabitants.

This is a record of the past: a few particulars of the present we unexpectedly received from no less an authority than the self-important consequential, withal shabbily-attired personage, the Custom House officer, whose acquaintance we had first made at Belem.

He was a man who strove to preserve an outward appearance of respectability in spite of adverse circumstances. The numerous tears and rents that his faded and discoloured uniform bore traces of were carefully darned and patched; the greasiness of his kepi was almost lost sight of in admiring the dazzling brightness of the brass acorn that ornamented its front, while a spotless white collar of grand dimensions, and long linen cuffs equally clean, albeit limp and crumpled, hanging in festoons round his fat, dusky hands, bespoke a determination to make the best of matters.

Drawn into converse by one of our party, who was



OPPOSITE LISBON.

master of the Portuguese tongue, he entered into a discussion upon things in general, and himself in particular—the latter topic of conversation no doubt prompted by the knowledge of his out-at-elbows appearance. He testified, first of all, to the general unequal distribution of riches in this world, citing the kingdom of Portugal as a particular instance. He drew comparisons between the respective emolument drawn by S. M. Dom Luis I. and his own miserable wage. The former, if I recollect rightly, was £200 per diem, the latter twenty pence, out of which the respectable man had to pay a license of ten shillings annually, and to find his own uniform. Poor humanity, indeed! The rotundity of his form, he explained, in reply to an in-

quiry that the incongruity between the foregoing particulars and its fair proportions suggested, was owing to the providential fact that he lived on the fare provided by the ship he was custodian of, and, as he seldom passed a day unemployed ashore, he had nothing to complain of on the score of food. He, however, gave us to understand that his wife was not remarkable for obesity. Exhausting this personal theme he launched forth upon more general topics, commencing with the army. Lisbon, he informed us, was a military division containing no less than thirteen barracks, wherein were quartered a battalion of engineers, two of light infantry, one regiment of artillery, two of cavalry, and five regiments of the line, numbering in all over 8,000 men. The navy he merely indicated with his finger, as it, or a portion thereof, lay before us peacefully at anchor in juxtaposition to the British squadron. It was composed, with one solitary exception, of wooden vessels, all apparently in a splendid state of preservation, and rendered as pleasing to the eye as bright paint, gleaming copper, and shining brass could make them. The one exception referred to was the prized ironclad ram, the *Vasco da Gama*, that seemed to rule over its associates with an air of conscious superiority.

We were next indicated the position of the royal palaces, the Braganza mausoleum, the Royal Academy of Sciences, the Meteorological Observatory, the Arsenal, and goodness knows where our topographical exponent would have stopped had not our attention been diverted by the passing of a large lateen-rigged boat with an inordinate complement of masts, and the royal ensign trailing over its stern. "The royal yacht of His Majesty Dom Luis," remarks our friend, Dom Joao of the Customs, resuming the explanatory air of showman, as, impelled by idle curiosity, our eyes follow the course of the regal fabric as it floats down towards Belem.

We are still gazing in this direction, admiring the delicate fretwork of the lofty watch-towers and embattlements of its tower that cut sharply into the crimsoning sky, when suddenly a vivid flash starts from ist ramparts, a puff of smoke, and a heavy report rolls over the dancing water, echoing and re-echoing from one end of the white city to the other, and across the broad river to Cacillas and Barreiro. The sun has set. From the shore elaborate bugle-calls sound, the church bells ring out yet more clamorously, and the stevedores working on board the vessels loading in the stream suspend operations with a precision essentially commercial.



LISBON.

Lisbon is dying in the crepuscle. It has turned ghastly and faint against the pale steel blue sky, then grey and mysterious in the fading light. It is growing more indistinct and more blurred, and very silent; when there comes a change—life is returning. Twinkling lights start into existence over its countenance, at first

by twos and threes, then too numberless to count, until it presents the appearance of a star-bespangled cushion. The vital spark is once more dominant. The rhythm of church bells that has sounded in our ears the live-long day has ceased, but is succeeded by fresh sounds, amongst which rise the strains of a military band marching through the streets and come across the star-reflecting water with (if one may use the expression) Liliputian distinctness. At every street corner that opens on to the river it gushes forth with redoubled vigour, then muffled as it passes behind a row of high houses. It comes out on to Black Horse Square to the ring of Lecocq's "Giroflé-Girofla" until it is drowned by eight bells striking in every variety of tone from the combined Anglo-Portuguese fleets, from the cargo-boats of all nations, and from the Royal Mail steamer that has just silently entered—a well defined silhouette relieved and distinct from the surrounding craft by the crimson and green port and starboard side lights that savour of the open sea without.

The deck is no place to be on now; the heavy dew is falling, slopping planks and bulwarks alike; Dom Joao is transformed into a huge greatcoat that smokes a cigarette and paces up and down between the hatches in silence. It is his duty; well were it also his pleasure.

* * * *

We are clear of Lisbon and the Tagus. Jaundice-visaged Castle St. Julian and the foam-crested bar with its white pharos are left astern, The stout, military-garbed pilot clumsily descends the rope ladder and is landed sprawling on the thwarts of his boat. Then we head northwards, and before us unfolds another description of panorama—one of blue hills and fawn-coloured sierras, from amid which the towers of the King's Folly at Marfa peep at us. Further along the massive Berlings rise over the water like an erratic iceberg; miles and miles, then we cross the course of a lumbering green-hulled barque, hailing from the Brazils, running in for Oporto; a break in the range of hills denotes the mouth of the river Minho, the juncture of Spain and Portugal, and we are off the shores of Galicia.



The Tower of Belem.

Morning finds us steaming close in to verdure-clad hills, a turn of which discloses the town of Vigo with its twin-towered cathedral, its red-tiled green-verandahed houses (one of which, by-the-bye, always strikes one as being of an inquisitive temperament, that, to ascertain for itself what is going forward in the bay, has perched itself on the head of a view-obstructing neighbour) nestling down to the water's edge under the protection of its lofty fort.

There is no question but that we are in a Spanish port. The inevitable brace of *Carabineros* have taken

possession of the ship, and pace the deck in their tasselled *gorras de cuartel*, or barrack caps, cigarette (of course) in mouth, with more than the air of two modern Selkirks—monarchs of all they survey; while their



VIGO.

Remington rifles, grimly reclining in the companion with military great coats and baggage, strike awe in the breasts of the timid. The natives who have found their way aboard wear sashes, and the scarlet *boina* that was the distinguishing feature of Don Carlos' rabble army; and certainly they look ferocious enough to be the followers of any mountain chieftain. Another encumbrance of the deck is the brown-faced country women with baskets of eggs and onions, of which they are determined you shall buy, *bon gré, mal gré*. They have the pertinacity of a score of Irish beggars. No, stands for nothing, twenty noes for less; their coaxing smile and outstretched basket haunt and follow you about the deck, till you would fain evade them by seeking refuge below.

Here, in the saloon, a solemn conclave is being held. At the head of the table the captain is seated before a black tin box containing the ship's papers, in company with a bevy of beetle-browed Galicians, who are restrained—and only just—from smoking by the impressive injunction of the skipper of "*No fumo* here, *caballeros*, against rules, against rules." And debarred from this indulgence they seek consolation in the "feast of reason and the flow of soul." They assert, they refute; they demonstrate, they remonstrate; they exhort, they invoke; they gesticulate with both hands and a toothpick; with dilated pupils and elevated eye-brows; they slap the mahogany board with open palm, strike with clenched fist, or ecstatically tap with inverted thumbnail; they smile, frown and laugh in a breath: amid which distraction of sound the florid skipper maintains a bland calmness, agrees with everybody, and understands as much as is barely necessary. It is only a discussion about a bull fight, and does not refer materially to the business in hand.

Were it not that the Channel Squadron is so frequently heard of from this port, Vigo would be all but unknown in England. How many householders are aware that perchance the beef that was served up at dinner yesterday (and which was pronounced somewhat tough), or the egg they tapped at breakfast, came from a picturesque little seaport called Vigo, in the North of Spain? Not many, I trow; though to see the number of pretty fawn-coloured beasts and huge egg-boxes that are shipped for London town testifies to the exceeding probability of the fact.

It is known to the Spaniards, however, and perhaps to some of our naval authorities, as being one of the best ports in Spain. It is also the lazaretto for the northern sea-board, and the place of residence of the military governor of the province.

In no port in Spain is the relative value of English coinage better understood than here. The shopkeeper and the old dame who presides over the street-corner orange and nut stall are equally alive to the advantages of exchange. It is a vain task to attempt to explain that one shilling is worth twelve pence; they smile compassionately at your pitiable display of ignorance, and kindly offer to show *you* the sterling value of the coin. That value, it is needless to say, is quite foreign to your own views of the matter.

In other respects also you obtain bad value for your money. The oranges of this part of the country, for which they would demand prices positively exorbitant, are scarcely worth the trouble of eating, much less buying. They are thick-skinned, and pithy—very different from the fruit of the south. The same disparity is found in the many confections for which Spain is justly famed. The luscious *meréngue*, of which the palate has retained such a lively recollection, when eaten down on the Mediterranean coast, is here crisp and dry, with a crustaceousness almost as formidable as the shell of the spider-like crabs, a species of large craw fish, that are exposed for sale in the fish market on the beach wherein we have peeped. But away! Let us not dwell within the precincts of that piscine emporium that hath, in truth, "an ancient and fish-like smell," which should not be associated with table delicacies; let us rather toil up the steep tortuous streets, stumbling over the rough paving that resembles the stepping-stones of a brook, where the shrill voices of the handkerchief-bound head, basket-balancing countrywomen intermingle with the tinkle of the mule-bells; where the proprietors of the little shops that blossom with "shoddy" and strange to say, check-bordered scotch caps, gossip neighbourly with rival traders; where the unemployed bask in the sunshine on the steps of the brown cathedral; till we come out on to the elevated Alameda—quiet and deserted at this time of day—where the salt breeze comes uninterruptedly across from the Atlantic.

From here we obtain a fine view of the bay, with our ship lying at anchor surrounded by a fry of deeply-laden barges that, the rattle of the steam derricks indicates, are being quickly relieved. As we have left the Channel Squadron at Lisbon, it is the only vessel of any size floating in the bay. It forms quite a prominent feature in the scenery with its high black sides, yellow funnel, and fluttering blue peter hoisted at the fore; and in a couple of hours' time, when we shall have up-anchored and steamed noiselessly away, there will be quite a void in the look-out from the Hotel Continental to the visitors who are sojourning there.

But one night, if they are chancing to peer out of the windows into the darkness without, they will see a chain of anchor-lights stretching across the black expanse; and next morning they will awake to the knowledge that the British Channel Squadron, with its attendant animation, has once again arrived at the most favoured of its favourite resorts.

ARTHUR M. HORWOOD.

INVENTIONS APPLICABLE TO THE REQUIREMENTS OF HER MAJESTY'S NAVAL AND MILITARY FORCES.

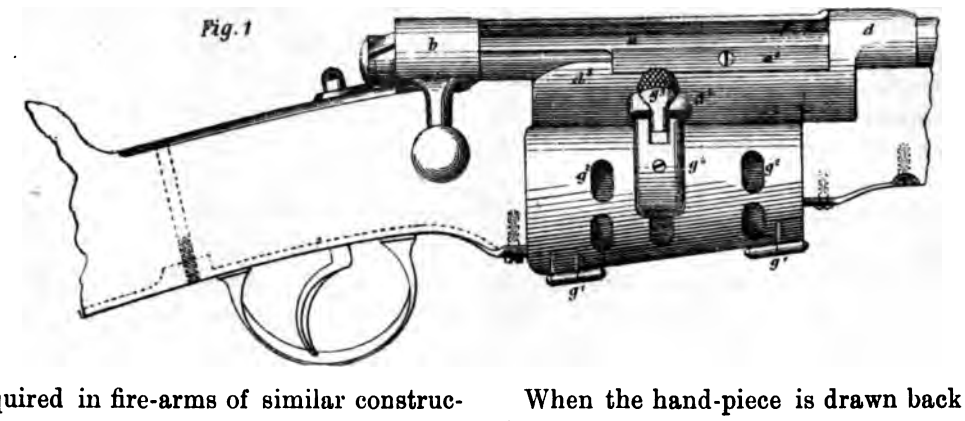
HERR JOSEF SCHULHOF'S MAGAZINE RIFLE.

THE principal novel features of this new magazine rifle are the sliding breech-piece or bolt, and the peculiar construction of the magazine. The invention belongs to that class of guns in which a sliding breech-piece or bolt is employed, and wherein the magazine is arranged between two parts of the stock in immediate connection with the cartridge-chamber in the breech-receiver.

The principle is simple, and the number of movements usually required in fire-arms of similar construction is reduced.

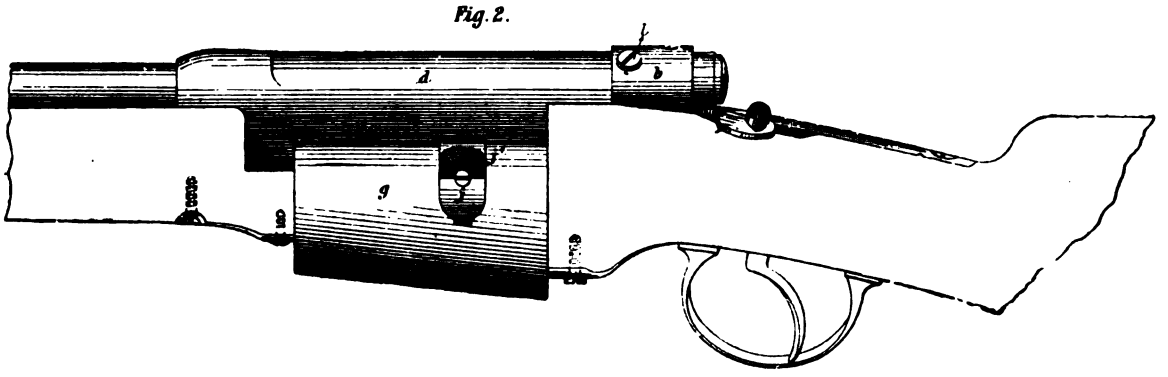
The sliding breech-piece or bolt in outward appearance resembles the "Mauser" bolt, and, like the latter, locks by means of a locking-rib turning into a recess in the breech-receiver or case. This breech-piece, or bolt, however, consists, besides firing-pin and special spiral spring, of essentially two pieces, the bolt or cylinder proper, and the hand-piece, by means of which it is moved back and forward. The hand-piece, which fits upon the rear end of the sliding breech-piece, or bolt, is provided with one or more internal spiral grooves fitting upon one or more corresponding spiral ribs or projections upon the end of the breech-piece, or bolt. The hand-piece is also provided with a horizontal guide-bar rigidly attached to it, which fits and slides in a corresponding groove or recess in the side of the breech-receiver or case, thereby permitting the hand-piece to make only a horizontal reciprocating motion, an up and down movement as in the "Mauser" hand-piece being prevented by the guide-bar.

Fig. 1



When the hand-piece is drawn back in order to open the breech, the bolt will, in consequence of being spirally guided in the former, receive about a quarter turn to one side, whereby the locking-rib is turned out of its recess and the bolt or breech-piece becomes free to be pulled back. In pushing in the hand-piece, the reverse takes place, and the bolt is locked. The rear end of the bolt or breech-piece is closed by a screw plug or locking-nut which may be so arranged as to be used as a safety-guard for the firing-pin.

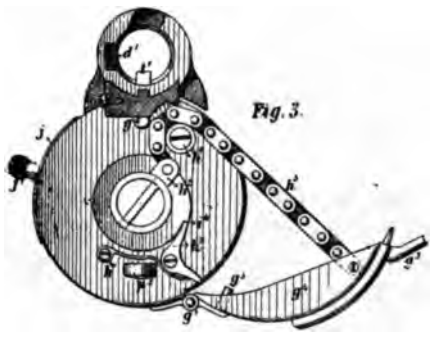
Fig. 2.



The magazine, which has the form of a drum, is attached to the stock and breech-receiver or case underneath the latter, which is for this purpose provided

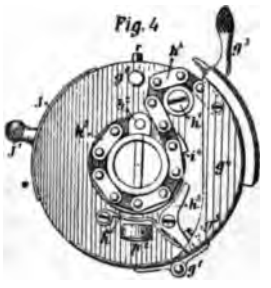
with a corresponding opening in the bottom, to permit the raising of the cartridges from the magazine into the breech-receiver or case. The magazine drum is made to contain from 8 to 14 cartridges, and is provided parallel with its axis with an interior central arbor or small drum, around and parallel to which the cartridges are arranged. This interior arbor turns in bearings, and is rotated in one direction by the unwinding of a small chain, arranged at the one end; the other end of the chain is attached to the lid of the magazine.

Thus when the lid is opened, the central arbor of the magazine receives one turn in one direction, and, as the


Fig. 3.

door or lid is fully opened, the arbor is stopped by a spring pawl catching into a corresponding notch in its end. The other end of this arbor is provided with a spiral spring, which is tightened or wound when the magazine door or lid is opened, and the arbor rotated in one direction.

By the action of the spring pawl, preventing the turning back of the arbor, the spiral spring is also kept wound until the magazine door is closed, when a pin attached to the latter strikes the pawl, thereby releasing

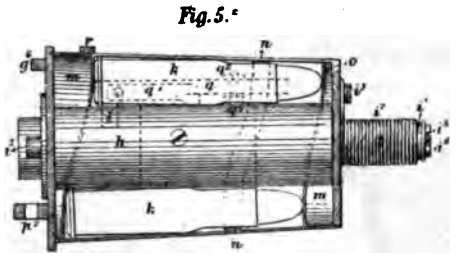

Fig. 4

the arbor, which is now turned back into its original position. This turning back causes the feeding of the cartridges into the chamber in the breech-case or receiver in the following manner:—

On its surface, parallel to its axis the arbor carries a slightly oscillating lever, which, when the magazine door is open, stands in its highest position to the right against the lower side of the case. The cartridges having been thrown into the magazine and the door closed, the spiral spring acting upon the arbor forces it in turn, whereby the oscillating lever presses laterally against the last of the cartridges, pushing them all before it, so that one cartridge after the other is passed up an incline, with which the magazine is provided, into the breech-receiver case, where they are struck by the sliding breech-piece or bolt, pushed home into the cartridge chamber, and subsequently fixed.

When the gun is to be used as a single-loader while the magazine is filled, a slide is pushed into the magazine,

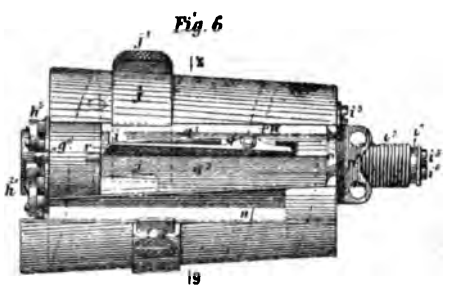
Fig. 5.[c]



which glides over the cartridges and prevents them from passing out.

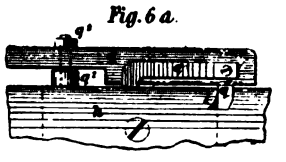
In the accompanying illustrations, Fig. 1 is a part elevation of the right-hand side, and Fig. 2 a part elevation of the left-hand side of the rifle. Figure 3 is a rear view of the magazine with the stock removed and the magazine flap opened. Figure 4 is a rear view of the magazine with closed flap. Figure 5 is a horizontal section of the magazine through the line *x y* Fig. 8. Figure 6 is a

Fig. 6



top view of the same. Figure 6[a] is a view of the cartridge transport lever. Figure 7 is a front view of the closed magazine. Figure 8 is a vertical section of the same through the line *x y* Fig. 6. Figure 9 is a top view, and Figure 10 a side view of the breech-receiver. Figure 11 is a side view, and Figure 12 a top view of the rear end of the breech-receiver with safety slide. Figures 13 to 13[c] represent the details of the handle or hand-piece to

Fig. 6 a.



the sliding breech-piece. Figures 14 to 14[a] represent the end piece of the sliding breech-piece, with spiral spring and curved ledge or rib. Figures 15 to 15[d] represent the sliding breech-piece or bolt, with extractor

and curved locking ledge or rib. Figures 16 to 16ᵉ represent the striking or firing pin.

Like letters denote like parts in all the figures.

The sliding breech-piece *a* (Figure 15) is provided at its rear end with a curved rib a^1 on to which the handle or hand-piece *b* (Figure 13), which is provided with a corresponding groove b^1, fits.

A guide-bar b^2, fixed to the handle *b*, glides in a corresponding groove d^2 of the breech-receiver *d*, so as to

Fig. 7.

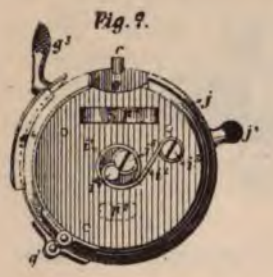
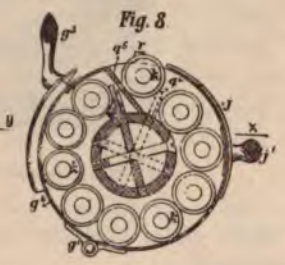


Fig. 8



prevent all turning of the handle or hand-piece and permit only a backwards and forwards or reciprocating movement of the same.

A screw b^3 in the handle or hand-piece *b* (Figure 13) gears into a curved groove a^2 in the sliding breech-piece or bolt *a*, so as to prevent the handle *b* from leaving the cylindrical breech-piece or bolt *a*. The sliding breech-



Fig. 9.

piece *a* is provided with a stop rib a^3, which fits into a recess d^6 in the breech-receiver, in front of the shoulder d^3. If the sliding breech-piece *a* (which is guided in a straight line by means of the guide-rod b^2 gliding in the groove d^1 in the breech-receiver) be drawn back from the position shown in Fig. 1, by means of the handle *b*, the groove b^1 will glide on the curved rib a^1 of the breech-piece *a*, so as to impart about a quarter turn to the latter, and so that the rib a^3 is freed from contact

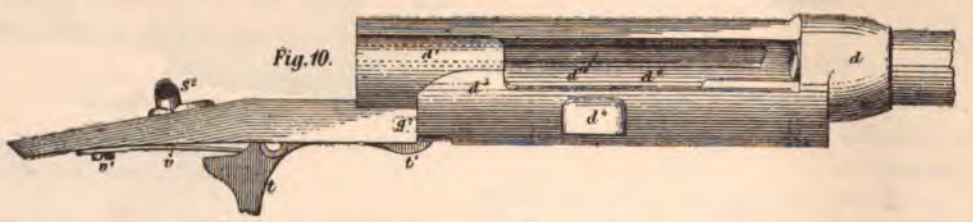


Fig. 10.

with the shoulder d^3, and the breech-piece or bolt can be drawn back.

When the handle *b* is pushed forwards, a contrary action takes place, the breech-piece *a* makes a quarter turn to the right and downwards; the rib a^3 lies in the recess d^6 behind the shoulder d^3, and locks the breech. The firing pin *f* (Figure 16) lies in the sliding breech-piece, which is correspondingly bored out, and its tip will, in fired position, protrude somewhat beyond the head of the sliding breech-piece.

The firing-pin *f* is guided by means of a peculiarly formed groove f^1 (Fig. 16) on a pin a^6 arranged in the interior of the breech-piece, cylinder or bolt. At almost the opposite side of the firing pin, is a slot f^2 which permits the free movement of the sliding breech-piece or bolt on the nose t^1 of the trigger, up to the stop f^4 (Fig. 16) by means of which the bolt is arrested and the spring put under tension. When the trigger *t* is pulled, the nose t^1 is so far depressed that the stop f^4 can glide over it and the firing-pin *f* be propelled forwards by the spring l^1. The firing-pin, in the interior of which the spiral spring l^1 is arranged, is enclosed in the sliding-breech-piece or bolt *a* by means of the part l^1. This end piece *l* may be attached to the sliding breech-piece *a* by means of a screw or suitable threads, but it is preferable to attach it by means of a bayonet-catch, as represented in the accompanying drawings.

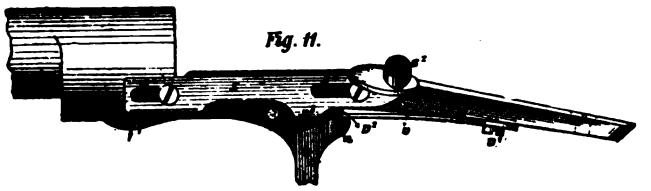
The forward piece of the end-piece *l* is provided with studs l^3 fitting into corresponding recesses a^5 of the sliding breech-piece or bolt, so that by inserting the studs in the recesses a^5, and giving the end-piece *l* a turn to the one side, it will be firmly attached to the sliding breech-piece.

In order to prevent the piece l^3 from leaving the breech-piece, the former is provided with a curved rib l^2, which fits into a corresponding recess b^4 in the hand-piece *b*. The spring l^1 fits over the pin *l* and is guided by it in the firing-pin *f*.

The safety slide is shown in Figures 10, 11, 12, and consists of the slide *s* which can be moved backwards and forwards in a guide s^1 in the tail-piece, by means of a suitable knob s^2. The trigger *t*, which ends in the nose t^1 projecting through the breech receiver *d*, is held constantly down by a spring *v*. A stud v^2 (Figs. 9, 11, 12) presses the spring *v* on to a stud or nose *u* of the trigger *t*.

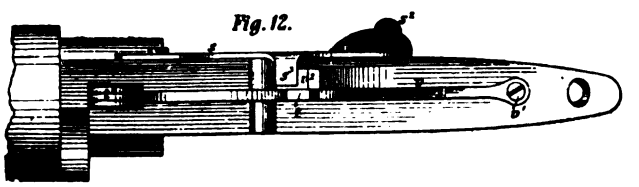
If the safety slide s be drawn back, a rectangular downwardly bent lug or stop s^3 of the safety-slide will be pushed between the stop v^2 and the nose u (Fig. 11) so that the spring v is pressed upwards and the trigger t held in its lowest position, thus rendering it impossible to pull the trigger and fire the gun. If the slide f be pushed forwards into the position shown in Fig. 11, the spring v and trigger t will be freed.

The magazine is arranged between the two halves of the shaft, and consists of a drum or casing g (preferably of thin sheet metal) which is attached to the forward and rear halves of the shaft by means of the lugs p^2


Fig. 11.

(Figs 3, 4, 5) and p^1 (Figs 6, 7) and appropriate screws. A stud or projection g^6 of the magazine fits into a recess g^7 (Fig. 10) of the breech-receiver, so as to fix the magazine to the breech-receiver d. The upper part of the drum g is cut away, corresponding with the recess d^2, in order to allow a cartridge to pass through it, the drum being provided with an incline q^5 to enable the ready entrance of the cartridge into the breech-receiver (Figs. 6, 8).

The inner walls of the drum are provided with spiral surfaces m, the object of which will be described later on. A second drum or shaft h is arranged within and concentric to the walls of the drum g, and has its bearings in the end walls of the latter. The shaft h is provided at its rear end with a journal h^2 (Figs. 3, 4) to which the chain h^5 is attached. The other end of this

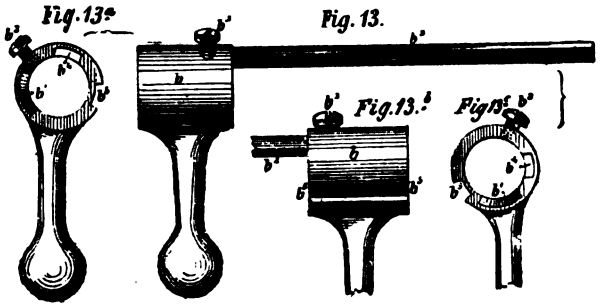

Fig. 12.

chain is attached to the flap g^4 of the magazine as shown in Figures 3 and 4. The forward end of the shaft or axis h is provided with a journal i around which an appropriate spring i^2 is coiled. The latter is attached to the journal i of the shaft h by pins or screws i^5 i^6, and to the flap g^4 of the drum g by means of the pin, peg or screw i^3, in such manner that when the shaft h is rotated the spring will be put under tension. This movement of the shaft h is caused by the opening of the flap g^4 as follows:—

The chain h^5, which connects the flap g^4 of the drum g with the shaft h, runs over a guide-pin or roller h^1 (Figs. 3 and 4) and is coiled on the journal of the shaft when the drum is closed. This end of the shaft h is provided with an eccentric disc or offset wheel i^4, in which a pawl h^3 gears when the flap g^4 is opened. The pawl is held in gear with the said disc by means of the spring h^4 when the flap is opened.

When the flap is closed, the disc or wheel takes up the position shown in Figure 4, so that when the flap is opened, the chain h^5 will cause the shaft h to make almost one revolution before the pawl comes in gear with the tooth or offset of the disc or wheel, and so that the shaft h is held in the position shown in Fig. 3, until the flap g^4 is again closed. In closing the flap g^4, the pin g^5 comes in contact with the lever-pawl h^3 which is brought out of gear with the offset or tooth of the disc or wheel i^4; the chain lays itself loosely against the wheel until the disc or wheel is freed, and is wound on the shaft by the force of the spring i^3, which was put under tension when the shaft h was rotated in opening the flap g^4.

The so-called cartridge transporter on the shaft h (Figs. 5, 6, 6a, and 8) consists of an oscillating lever q on the pivot or screw q^2, q^3, the movement of which is limited by the length of a slot i in which a stud q^6 moves. A spring q^1 arranged laterally on the transport

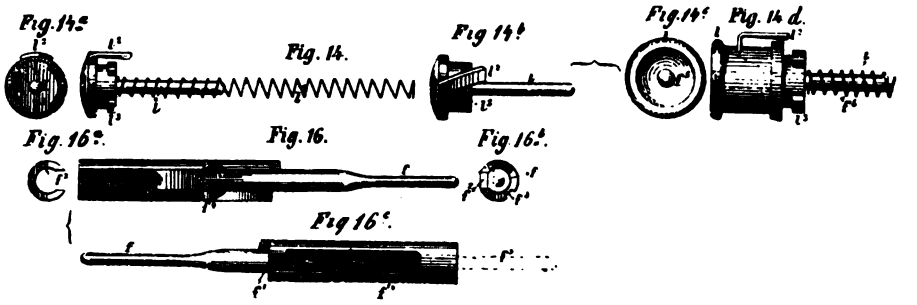

Fig. 13a. Fig. 13. Fig. 13.b Fig. 13c

lever q, bears against the shaft h and retains the lever parallel to the latter. The operation of the magazine is as follows:—

In order to fill the magazine, the flap g^4 is opened and puts the spring i^2 under tension. The pawl h^3 falls at i^4 on to the disc, and keeps the shaft h in the position shown in Fig. 3. In opening the door or flap g^4, the wheel h is given one turn, and the transport lever stands in the position shown in Fig. 8, near the opening. The cartridges are now loosely inserted in the magazine and roll around the shaft h, when the weapon is held to the one side, until the first comes in contact with the incline q^5 at the opening in the breech-receiver d^2 (Figs. 8 and 9).

The magazine is now filled and the door g^4 closed, the pin g^5 releases the pawl h^3 and leaves the shaft h free. The spring i^2 having been put under tension by the rotary movement of the shaft h, has a tendency to return to its original position. The transport lever q presses hereby against the last cartridge, so that the cartridges are pushed forwards until the foremost is pressed up on to the incline q^5 and, when the

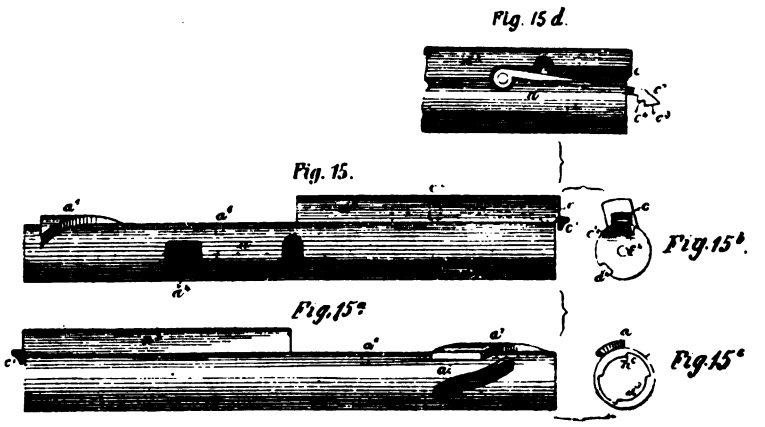
sliding breech-piece is drawn back, through the opening in the breech-receiver, into the cartridge chamber. In closing the breech, the sliding breech-piece *a* comes against the flange of the cartridge and pushes it up the incline *o* (Figs. 5 and 7), into the cartridge chamber in the barrel. When the last cartridge has reached the incline q^5, the transport lever *q* is in the position shown by the dotted lines in Fig. 8, and the spring i^2 is freed from tension. It will be evident that the operation of the parts will remain the same whether one or more



cartridges are laid in the magazine,—if one cartridge be laid in the magazine, the shaft *h*, and consequently the transport lever *q*, will be moved in proportion, so that this cartridge is also brought under the opening d^2 (Fig. 9). When the magazine is full, the closed breech-piece will prevent a cartridge from rising through the opening d^2 (Fig. 9) whereas each time the breech-piece is drawn back, a cartridge will rise sufficiently to be forced into the cartridge chamber in the barrel. The flap g^4, which is hinged at g^1 to the magazine, is held in closed position by means of a suitable spring catch or its equivalent.

The extractor c^1, arranged in a bearing *c* of the locking ledge a^3, of the breech-piece, is attached to the latter by means of the screw c^2 so that it will snap over the head of the cartridge when the breech-piece is pushed forward. Fig. 15a represents a modification of the extractor arrangement.

When the sliding breech-piece is drawn back, the flange of the cartridge shell will strike against a pin *r* fixed to the drum *g*, and extending through a cavity r^1 in the breech-receiver *d*, so that it is ejected. In order to be able to employ the rifle as a single loader, with filled magazine, a slide *j* is employed. When not in use, this slide occupies the position represented in Figs. 3, 4, 7, and 8. If the slide be pushed forwards by means of the knob j^1, it will occupy the position as shown by the dotted lines Fig. 6 over the cavity or opening d^2 of the breech-receiver (Fig. 9), and consequently over the opening in the drum and above the cartridges, thus preventing the latter from leaving the magazine. The sliding breech-piece will now glide freely over the cartridges in the magazine, so that the weapon can be used as single-loader until the slide *j* is withdrawn, when the magazine again comes into action. As the magazine is not placed immediately beneath the cavity or opening d^2 in the breech receiver, but a trifle to the rear of the latter, the inner walls of the drum *g* are provided with spiral guides, so that the cartridges which originally lay somewhat to the rear



of the opening d^2, will on their way upwards be gradually pushed forward until the uppermost cartridge comes in line with the opening. A rib *n* applied to the inner wall of the magazine, serves to hold the cartridge in horizontal position. The magazine can be readily emptied by simply opening the flap g^4 and allowing the cartridges to roll out. If desired, the walls of the magazine may be perforated at g^2 in order to be able to ascertain whether the magazine is filled or not, without having to open the flap.



THE KYNOCH REVOLVER.

This weapon, the invention of Mr. Henry Schlund, of the Kynoch Gun Factory, Aston Manor, near Birmingham, by the recent introduction of some improvements in its mechanism, may now fairly be classed as the most simple, in respect to lock mechanism, of any revolver in existence, whether single or double action. Being hammerless, a perfectly free line of sight is secured to the shooter.

It is noticeable that the simplicity of its construction renders the tools, that are generally used in other revolvers for the purpose of taking them to pieces and putting them together again, quite needless in this weapon, the only tool required being a small turnscrew to remove the small pin (25). Even this can be effected by the thumb-nail, if necessary; but the mechanism, being all enclosed, is as nearly dust-proof as possible, and can be taken to pieces and cleaned in a few moments when necessary.

To load the chambers, the locking slide (11) is drawn back by pressing with the thumb the milled projection, shown at the lower end; the barrel and cylinders can then be tilted with one hand, and the cartridges inserted in the chambers, and the whole closed again with an upward jerk of the weapon.

A very interesting feature is the automatic extraction of the empty cases which is illustrated in the following engraving. This is effected with the greatest ease in this manner:—When the barrel drops by pressing the milled projection on the bolt (11) it is made to rotate on the pin (24) by a smart shake, and the whole of the empty cartridges are expelled simultaneously from the cylinder, and after the extractor comes to its length of throw, it returns also automatically. With this important operation, strength and perfect safety is combined in closing of the breech.

But, perhaps, the most striking feature of the design is the presence of two triggers, one intended to rotate the cylinder and bring the hammer to full cock; the other, the smallest one of the two, serves for the discharge. It will thus be seen that the two operations of cocking and firing are rendered distinct.

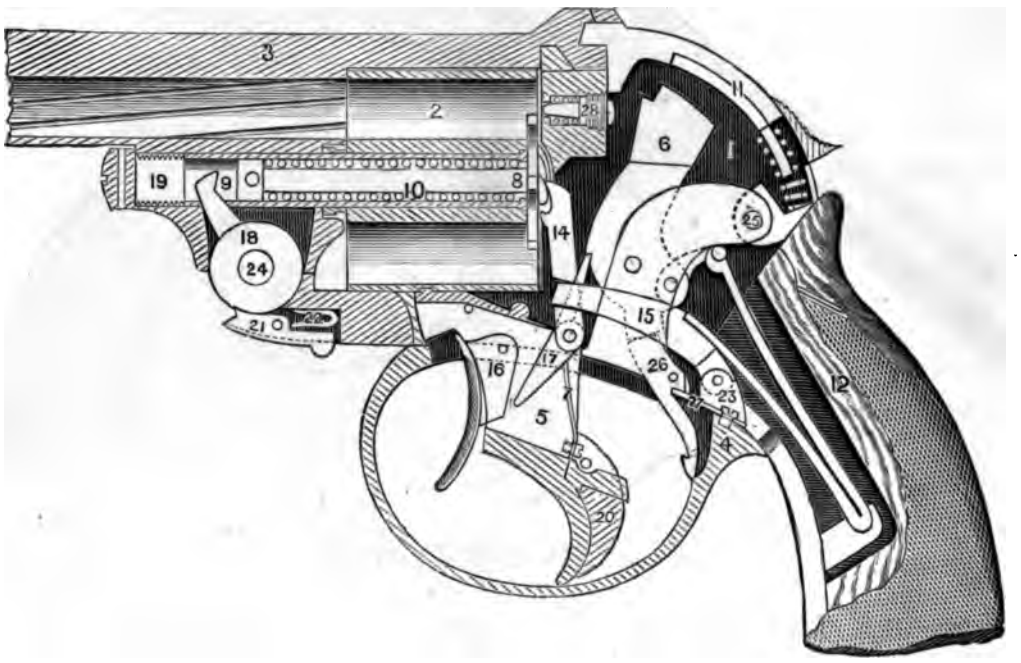
When the cocking trigger is drawn right back, the hooked part (26) catches the projection in the rear, and holds the trigger in that position until the weapon is discharged. The advantage of this arrangement is that the disturbance of the arm caused by the powerful pull which is always needed to cock any other weapon is entirely avoided; for when the object aimed at is covered, the slightest pressure by the forefinger of the firing trigger explodes the cartridge, and both return to their ordinary position. To a steady shooter this enables him to make unusually good diagrams; but if the shooter does not wish to fire the weapon after it is cocked, the trigger can be released by removing the forefinger from the firing trigger, and using it to press the milled piece (20); the trigger can then move forward, bringing the lock to half-cock.

If the user of this revolver has any doubt as to

whether he will actually fire or not, he can refrain from drawing the trigger so far back as to engage with the hook (26), and then he has only to relax the pressure of his finger for the lock to return to half-cock.

The workmanship is thoroughly first-class, the desire of the manufacturers being to produce an article unique as regards strength, reliability, simplicity, and cheapness. It can easily be loaded on horseback, when one hand is engaged with the reins. The breech is well protected, so that the flash from a burst cartridge cannot reach the face of the user.

The different parts belonging to the revolver are thus named 1, Body; 2, Cylinder; 3, Barrel; 4, Guard; 5, Cocking Trigger; 6, Hammer; 7, Sear Spring; 8, Extractor; 9, Extractor Tube; 10, Extractor Spring; 11, Locking Slide; 12, Stock; 13, Mainspring; 14, Lifter; 15, Rebounder; 16, Trigger; 17, Sear; 18, Extractor Lifter; 19, Extractor Tube Nut: 20, Release bent piece; 21, Extractor Release; 22, Extractor Release Spring; 23, Slide Spring; 24, Joint Screw; 25, Binding Nut or Screw; 26, Cocking-sear; 27, Cocking-sear spring.



The Kynoch revolver made some exceedingly good shooting at the late Wimbledon meeting, at some of the moving and disappearing targets; in one case the six shots were placed so close together that, horizontally, they were very little out of the centre, and vertically correct; the group of shots could easily be covered with a card, $2{\cdot}6 \times 1\frac{1}{2}$ in. This demonstrates the certainty of aim when used against moving objects.

REVIEWS.

On the Growth of the Recruit and Young Soldier. With a view to a Judicious Selection of "Growing Lads" for the Army, and a Regulated System of Training Recruits. By Sir WILLIAM AITKEN, Knt., M.D. (Edinburgh), F.R.S. Second Edition.

The industrious pathologist of the military hospitals at Scutari, the learned lecturer at the Army Medical School at Netley, has published, not a moment too soon, the second edition of the above valuable work. Wisely he has appended the Preface to the first edition; for in that is contained the *raison d'être* of its first appearance, and, we may add, that of the second edition now before us.

Sir William Aitken in this preface, says: "The principles (physiological) which have hitherto guided the military authorities in the selection of recruits appears to be unsound: (1) as regards the correlation of age and height; and (2) as taking no cognizance of weight, development, bulk, or growth in their relations to age and height. The result is, that teaching the recruit his military duties and drill, and taxing him prematurely with the routine duties of the soldier's life, eventually lead to the discharge of a proportionally large number of young soldiers before they have been three years, or even two years, in the service; and the greater portion even of these two or three years is spent in hospital. Any part of an army composed of such material can never constitute a very formidable phalanx; and the service of such soldiers represents merely a nominal strength." And finally adds: "I would claim, at least for the recruit, the exercise of a judgment in selecting him not less sound, and of a care in training him not less scientific, than the judgment and the care which a gentleman thinks judicious and proper to bestow upon a useful dog or a valuable horse."

The book is divided into Sections. In the first, or introductory, the Military Medical Officer will find the comments on the "material" he has to deal with exhaustively treated, and the whole question of "age" and the liabilities it entails discussed in a clear, comprehensive, and practical manner. In referring to the youthfulness of our army, Sir William says: "It now, more than ever, requires a rare combination of qualities in all commanding officers, in order to maintain its material in health and efficiency. In addition to high professional acquirements, a knowledge of the world and of human nature, as well as what the human body can endure, the faculty of applying that knowledge with judgment and discretion in the training of boys and men, is essential to those who occupy such commands. Not less efficient professional knowledge, technical skill, and qualifications are required of the army medical officer in the selection of the recruit." The whole of this section may be consulted with advantage, both by commanding and medical officers.

The second section is on the "Composition of the British Army," as to the ages of its non-commissioned officers and men, and contains some very important observations relating to the composition of the army in India. Although it has been shown by statistics and clinical observation, the undesirability of sending growing lads to India, we learn that an annual average of 455 lads *under* eighteen were serving in India during these ten years. In 1883 the death rate from enteric fever was 4·34 per 1,000 among soldiers under twenty-five, while the mortality was only 1·50 per 1,000 among soldiers between twenty-five and twenty-nine years of age. Special rules should be observed in reference to selecting recruits for India, and the same remark applies to sending young officers.

The question as to the fitness of lads under twenty years of age for general military service, in peace, in war time, in the field, at home and abroad, is an admirable section, and evidences the research and industry of the author, which will prove alike interesting to commanding and medical officers. Professor Aitken does not consider a three-months period of probation is enough for recruits. They ought to have at least two years' training and physical development after enlistment at eighteen, before they pass into the ranks, having then completed their twentieth year. Space will not allow commenting upon each section in detail, but the reader will find in the work an amount of information encyclopædic in character on all matters connected with the growth of the Recruit and Young Soldier which cannot fail to prove to recruiting officers and military medical officers of the highest practical interest and use. And if the rules laid down for the selection of recruits are carefully carried out, the per-centage of disease and discharges should be considerably reduced, and the ranks of the army materially strengthened.

A New Constitution for Malta. By Sir VICTOR HOULTON, G.C.M.G., Chief Secretary to the Government, 1855 to 1883. (London: The Southern Publishing Company, 160, Fleet Street, E.C.)

How to reform the actual Constitution, so as to satisfy the desires of the loyal people of Malta, and at the same time ensure the security of the fortress, and all imperial interests connected with it, is the problem which is now under the consideration of Her Majesty's Government.

The Maltese have often appealed for, and are now desirous of obtaining, a greater control over their own purely local and domestic affairs, and the expenditure of their own local revenue, and their aspirations are limited to this concession, and, if granted, "no conditions which Her Majesty's Government would think it necessary to lay down for the security of the fortress would appear to them to be onerous, or in any way unacceptable."

The Legislative Council, it would appear, is composed of eighteen members, ten official, including the Governor, who had a casting vote, and eight elected by the people. Consequently, without using the casting vote of the Governor, there was at all times at the disposal of the Government a permanent majority of one. How this

majority has been taken advantage of by certain Governors is well set forth in Sir Victor's exhaustive pamphlet. One example must here suffice. Sir Gaspard le Marchant was a man full of energy and action, and had a great passion for the execution of great public works. "But (and this 'but' is of importance) the execution of all these great works required money votes from the Council to defray their cost. And if the elected members were at any time backward in coming forward to vote the sums requisite, no quarter was given. The nine officials rose in Council to a man at the word of command, and the money vote was passed, whether the elected wished it or not." And this extravagant and high-handed system of expenditure has been "crescendo" year by year. The query commonly put is: "Of what possible use and advantage can it be to us, the people of Malta, to elect representatives, who, when they attempt to assert themselves in matters not fringing even upon Imperial rights, but are simply and purely of local and domestic interest, are at once out-voted by a permanent official majority?"

Sir Victor's pamphlet advocates in clear and temperate language what the Maltese desire to obtain from Her Majesty's Government, viz. that Malta should govern itself in all matters, local and domestic, which do not touch the supremacy of the rights of the fortress. The Maltese are a loyal and industrious race, of which they gave practical proof at the Colonial and Indian Exhibition, where their varied industries and the products of the island were exhibited in a Court pronounced by all visitors as the most representative and beautiful. Sir Victor Houlton's experiences of Malta, its inhabitants and resources, make this pamphlet very valuable, and may be consulted with advantage by all who are interested in this important island—the head-quarters of the Mediterranean Fleet.

History of the (Second Queen's) Royal West Surrey Regiment (1661 to 1684). By Lieut.-Col. JOHN DAVIS. (Richard Bentley & Son.)

On 8th May 1661 King Charles II. summoned Parliament and informed them that he had "some news that I think will be very acceptable to you, and therefore I should think myself unkind and ill-natured if I should not impart it to you. I have often been put in mind by my friends that it was high time to marry." So after explaining that he had taken due deliberation in the matter, he announced that arrangements had been concluded with the daughter of Portugal, and added "I will make all haste to fetch you a Queen hither, who, I doubt not, will bring great blessings with her to me and you." As is well known, Catherine of Braganza, the lady destined to wed the King of England, brought to the British Crown as dowry not only a considerable sum of money, but the island of Bombay, and the port of Tangiers on the Coast of Africa.

With the former place this article has no concern, but as regards the latter it may be explained that it became necessary to raise a regiment of infantry to occupy the new possession. This done, the newly embodied troops were despatched to their destination, only to find the Moorish Governor declaring that "the Mohammedan law would not permit them to give liberty to Christians to erect fortifications in Africa." Nevertheless, a small redoubt *was* built, but fighting ensued, and with such zeal did the Tangiers Regiment conduct itself that the Governor wrote home that "he never saw officers and sogers more eager and ready to fight." "I know not," he naively added, "if it be a motiv of Christianitie against infidels y^{t} causeth it, but I daresay we have good lynes before us to defend us." The foe was, however, "fierce, fanatical, and relentless," the troops were "wearied with constant assaults, disheartened from want of pay, and weakened by lack of sufficient food." Still they held their own for twenty-three years, fighting "like lions almost with the courage of despair."

Such in outline is the story of the formation of the present (2nd Queen's) Royal West Surrey Regiment, which Lieut.-Col. John Davis has recently published. The volume only embraces the events of a quarter of a century, during which Tangiers was occupied by the English, but it was a period of daring, pluck, and enterprize. It is a proud regiment, and may well glory in its early distinction which, despite the splendid records of the Peninsular War, and of the first struggle in Affghanistan, stands undimmed by more recent triumphs.

As regards the work under criticism, it is no small modicum of praise to say that it is in every way worthy of the gallant regiment whose gallant deeds it chronicles.

SUMMARY OF ARTICLES IN FOREIGN SERVICE MAGAZINES.

REVUE MARITIME ET COLONIALE. (Paris: Librairie Militaire de L. Baudoin et Cie, 30, Rue et Passage Dauphine.)

The First French Expedition to Algeria (1664)—Travels in Senegambia (by Dr. Bayol, Lieut.-Governor of Senegal) (*continuation*)—Combined Land and Sea Operations (*continuation*)—Historical Studies of the French Navy (*continuation*)—Notes on Madagascar (*continuation*).

REVUE MILITAIRE DE L'ÉTRANGER. (Paris: L. Baudoin et Cie., 30, Rue et Passage Dauphine.)

The Organization of the Italian Army (*conclusion*)—Experiments on the Preparation of Rations for the Russian Army—The Present Organization and Effectives of the Russian Cavalry—The Future Railways of Turkey in Asia—The Manœuvres at Krasnoe Selo in 1887—The German Railways in the Budget of 1887-88—The Chinese Frontiers.

REVUE DU CERCLE MILITAIRE—ARMÉES DE TERRE ET DE MER. (Paris: 37, Rue de la Bellechasse.)

The Russian Soldier and the Russian Army—The Nordenfelt Submarine Boat—The Torpedo-boats of the English Navy—War in the Sahara—The Scouting Regulations for Russian Cavalry—Marching in Mountainous Country.

REVUE DE CAVALERIE. (Paris: Librairie Militaire, Berger Levrault et Cie., 5, Rue des Beaux Arts.)

The Three Colberts (by General Thoumas)—Historical and Tactical Studies of the German Cavalry Operations in 1870-71 (*continuation*)—French Riding Schools since the Fifteenth Century—Historical Records of French Cavalry Regiments.

JOURNAL DE LA MARINE. Le Yacht. (Paris: 50, Rue Saint Lazare.)

The Normand Torpedo-Boats—The Cruiser *Dupuy-de-Lôme*—Admiral Jauréguiberry.

JOURNAL DES SCIENCES MILITAIRES. Revue Militaire Française. (Paris: L. Baudoin et Cie., 30, Rue et Passage Dauphine.)

The Theatre of the Forthcoming War—The Officer and the Superior Cadres (*continuation*)—History of the Regiments raised in July 1887—Notes on the German Colonies—The French Army and Navy before the Revolution (*continuation*)—Army Transport (*continuation*).

REVUE D'ARTILLERIE. (Paris: Berger Levraut et Cie, 5, Rue des Beaux Arts)

The Regulations for the Manœuvres of the Austrian Artillery—Swedish Trials with Small Arms, 1884-86—Maxim's Automatic Machine Gun—The Principal Austrian Artillery Trials in 1886.

REVUE MILITAIRE BELGE. (Bruxelles: Librairie Militaire C. Muquardt.)

The Franco-German Frontier, from an Historical and Strategic Point of View—The Northern and Eastern Frontier of Germany—The Use of Modern Field Artillery in Battle—Aeronautics and the Military Pigeon Systems.

NEUE MILITAERISCHE BLAETTER. (Potsdam: Villa Schwanenbrücke, Post: Klein Glienicke.)

The French Mobilization Experiment, I.—The Bavarians in the Tyrol in 1809, II —The Training of Soldiers —The Campaign of the Great Elector Frederick William against the Swedes in 1675.

JAHRBUECHER FUER DIE DEUTSCHE ARMEE UND MARINE. (Berlin: Richard Wilhelmi.)

The Difficulties in Employing Large Masses of Field Artillery (*conclusion*)—The Fortifications of Holland—The Adoption of the Repeating Rifle in France—The Belgian Meuse Fortifications.

INTERNATIONALE REVUE UEBER DIE GESAMMTEN ARMEEN UND FLOTTEN. (Cassel: Verlag von Theodor Fischer.)

The Warlike Peculiarities of the European Nations, an Ethnological Study—The Military Value of the Canadian Pacific Railway—The Mobilization of the 17th French Corps d'Armée.

MITTHEILUNGEN UEBER GEGENSTAENDE DES ARTILLERIE- UND GENIE-WESENS. (Wien: Druck und Commissionsverlag von R. v. Waldheim.)

Transportable Field Railways (*continuation*)—The Use of Electricity in Metallurgy—Observations on Earthquake Shocks.

MITTHEILUNGEN AUS DEM GEBIETE DES SEEWESENS. (Pola: Druck und Commissionsverlag von Carl Gerold's Sohn in Wien.)

The English Naval Manœuvres of 1887—The Advantages and Disadvantages of the Various Systems of Armour-plating for War-ships—The Chinese Navy—The Launch of the *Trafalgar*.

RIVISTA MILITARE ITALIANA. (Roma: Voghera Carlo, Via Nazionale).

Battalion Tactics—The Repeating Rifle—The Sword Bayonet—Equipment and Ammunition—The Contingent of 1861 in the Grand Manœuvres—The Fight for Colonial Expansion in the Nineteenth Century—The Mobilization of the German Army.

RIVISTA DI ARTIGLIERIA E GENIO. (Roma: Tipografia e Litografia.)

Military Service — The Question of Indemnity — Artillery in Action and the New Armament of Infantry —Indirect Fire with Siege Artillery—The Italian Field Artillery — Quick's Breech-loading Gun (from the *Illustrated Naval and Military Magazine*)—The Fortresses of Bulgaria.

ILLUSTRAZIONE MILITARE ITALIANA. (Milan: Via Santa Margherita, 9.)

Pontoon Manœuvres—French Grand Manœuvres—The Belgian Grenadiers—The Torpedo-ram *Giovanni Bausan*—The New Italian Cavalry Regiments.

RIVISTA MARITTIMA. (Roma: Tipografia del Senato.)

The Italian Naval Estimates (*continuation*)—The English Naval Manœuvres—The History of Submarine Mining since 1810—Zanzibar.

REVISTA CIENTIFICO-MILITAR. (Barcelona: Bailen, Numeros 25 y 27.)

Marocco—The Spanish Navy—Military Service in Spain (*conclusion*)—The Moors in Spain—Infantry Fire on the Field of Battle—Artillery in the Middle Ages (*continuation*).

AT THE PLAY.

THE production of "The Old Guard" at the AVENUE was looked forward to with some interest, from the fact that the music is by Mons. R. Planquette, the composer of "Les Cloches de Corneville," but the result has hardly come up to the expectations formed. The music is pretty and is well sung, especially by Miss Marian Edgecumbe and Mr. Alec. Marsh, but by no means comes up to its popular predecessor. The plot has nothing very original in it, but is sufficient for the purposes of comic opera, and there is a great deal that is bright and amusing. Mr. Arthur Roberts makes one laugh—as Toole does—whether one will or no, and is occasionally really funny and original, but he must be a trying co-actor, as he is perpetually diverting attention from the business of the scene by his antics. The duet between him and Mr. Dallas "When we were young," is excellently rendered, and deserves the encores it, of course, receives. Miss Marian Edgecumbe not only sings well, but acts naturally and unaffectedly as Fraisette, and thereby provides a striking contrast with Miss Fanny Wentworth, some of whose notes are like a peacock's, and whose restless over-piquante style reaches the very acme of affectation. Miss Henriette Polak acts the bugler Patatout with much spirit and point, in which she is rather helped than hindered by her accent. Miss Phyllis Broughton is as popular as ever in her dances, but, as usual, lacks the grace and ease which give the special charm to Miss Kate Vaughan's movements, and to some extent are noticeable in Miss Lettie Lind.

The ST. JAMES'S stage is occupied for a short season by Mr. Marsham Rae's drama "The Witch," translated, or rather adapted, by him from the German. The play has somewhat of a narrow escape of being a good one, but the matter of it is too thin for the four acts over which it extends. The interest turns solely on the transference of the hero's affections from one sister to another—joined to the fact that the former is accused by the ignorant populace of being a witch—and might easily have been compressed into two acts. The dialogue, too, is apt to be stilted and formal, and is seldom relieved, either by point and force, or by aptness of simile and beauty of language. Mr. Rae has been fortunate, however, in securing the services of Miss Sophie Eyre for the heroine Lady Thalea, and Mr. Henry Neville is always reliable in a robust part of the kind; though it is, perhaps, allowable to hint that he is no longer as well suited to the *Jeune Premier* as he was some years ago. Miss Eyre fails somewhat in dignity in the second act, but, otherwise, gives a good rendering of a difficult part. It must be a terrible thing to have to represent the stage-*ingenue*, and whether anyone could make the part of the Lady Alma tolerable we do not know, but certainly Mrs. Marsham Rae does not succeed in enlisting our sympathies, nor in making us think her artlessness unaffected. Mr. Forbes Dawson makes the most of a small part, and the same may be said of Mrs. Huntley—always a conscientious actress—and of Mr. R. de Cordova. The play is preceded by an excellent little comedietta, "Petticoat Perfidy," by Sir Charles Young, capitally acted by Miss Alexes Leighton and fairly by Miss Grace Arnold, and Miss Maud Cathcart.

The GLOBE, which is soon to pass into Mr. Wilson Barrett's hands, has, in the interim, brought out another translation from the German of Herr Von Moser, called "The Arabian Nights." There is so much that is amusing in this three-act farce, that it is the more a matter of regret that Mr. Sidney Grundy, the adapter, should have allowed himself to scatter so many doubtful allusions throughout the piece. Mr. Hawtrey is excellent as the unhappy hero—though it is true that the character is unfortunately like that he had to represent in the "Snowball," and as his quiet method is always the same, the resemblance is the more marked—and Miss Lottie Venne admirably suited in the character of Rosa Columbier, the "gutta-percha girl" from the Aquarium. Miss Zerbini makes the most of the hackneyed character of the mother-in-law, and Mr. Penley is specially amusing as Joshua Gillibrand.

Mr. Thomas's successful little piece "Lady Fortune" still keeps its place on the bills, and shows Mr. Graham Wentworth to much advantage. Miss Cissy Graham is very disappointing after her excellent rendering of the title *rôle* in "Barbara," and Mr. Glover so vulgar and unattractive as the lover that it is impossible not to prefer his rival.

The VAUDEVILLE has produced a play, by Mr. H. A. Jones, called "Heart of Hearts," which has about as absurd and improbable a plot as ever play was endowed with. We are introduced to the home of an old family of position, whose heir is about to marry the butler's niece, and we are expected to look upon the unfortunate mother, Lady Clarrissa Fitzralf (why has her Christain name two r's we wonder?), as all that is odious because she, very naturally, dislikes the match; added to this, the poor lady's sister-in-law is secretly married to the butler, and, further, when a bracelet is missing containing an enormous ruby, which all the world would recognize, the butler's neice is supposed to have taken it, though no conceivable motive for such an idiotic theft is even suggested. The acting alone redeems this ill-constructed piece. Mr. Thorn is excellent as the butler, especially in the earlier scenes, Miss Sophie Larkin is amusing, though the part is too obviously supplied to order, Miss Kate Rorke makes the most of the butler's niece, and Mr. Gilbert Farquhar, with a capital get up, does good service as Marcus Latimer. Mr. Leonard Boyne is not well suited in his part, but avoids over acting, and now and then gives a real touch of nature, suggestive of what he might do in a part of the Bob Brierly stamp; but perhaps the most successful representation in the piece is that of Sybil Latimer, by Miss G. Warden—she looks the character to perfection, and gives due point to every word of her short part. Miss Rose Leclerq cannot be congratulated on her personation of a *Grande Dame*. Mr. Fred. Thorne is good as Dr. Chettle, infinitely better than he is as Colonel Berners, in Theyre

Smith's charming little piece, "Cut off with a Shilling," which precedes the play and is poorly acted.

The Savoy has revived "Pinafore," which seems as popular as ever, before producing Mr. Gilbert's next novelty. Many of the original cast are again performing their parts, but much of the point of Little Buttercup is lost by allotting the character to Miss Brandram, who, though singing and acting admirably, cannot make herself appear of the goodly proportions of her predecessor.

The German Reed Entertainment has seldom, of late years, had so bright a little piece as Mr. Malcolm Watson's "Tally Ho," which is now on the bills. The Music, by Mr. Alfred Caldecott, is exceptionally pretty, notably a duet between the lover and the blacksmith, with clinking accompaniment on the anvil, and Mr. Alfred Reed is specially well suited in his part. The company is also to be congratulated on a much more efficient young lady than they have had for some time, Miss Kate Tully, who is a great improvement on the last. Mr. Templer Saxe, who does the blacksmith, is also new, and has, no doubt, been chosen for his fine voice; as an actor he is not successful, and appears to think that every word in his part ought to have as much emphasis and point crammed into it as it can hold. The result when joined to an extremely stagey peasant-dialect is, of course, very tiresome. Miss Holland is good, as usual, especially in the hunting duet with the Squire, which is full of "go."

Mr. Corney Grain's clever sketch, "So Quiet," follows, and has improved in several small touches since we first saw it.

The Criterion has had such success lately with standard pieces, that the public was quite unprepared for the feebleness and inanity of "The Circassian," which has succeeded "Our Boys." Mr. David James is not, in our opinion, an actor who can afford to dispense with a good part, and here he is not provided with one telling thing to say. The idea of the piece is a good one—though, perhaps, Mr. Anstey might say that it owed something to his "Giant's Robe,"—but is worked out without a spark of humour or ingenuity, except in the first act. Mr. Giddens is quite thrown away. The one bright spot is afforded by the capital sketch of a shy young man, given by Mr. Sidney Brough, which could hardly be improved upon; but he has but one scene early in the play, and then disappears till just before the fall of the curtain. We hope to see this rising actor in a better play shortly. The play is from the French, and is adapted by Mr. F. W. Broughton.

Pieces that have been running for some time.

Adelphi.—"The Bells of Haslemere," melodrama, Mr. W. Terriss, Mr. Cartright, Mr. Beveridge, Miss Millward, Miss Clara Jecks, Miss Annie Irish, &c.; and a farce.

Comedy.—"The Barrister," three-act farce, Mr. Fred Mervin, Mr. Walter Everard, Mr. J. H. Darnley, Miss H. Layton, Miss Susie Vaughan, &c.; and "The First Night," Mr. Frank Wyatt.

Drury Lane.—"Pleasure," melodrama, Mr. Harry Nicholls, Mr. Edward Gardiner, Miss Alma Murray, Miss Fanny Brough, &c.

Gaiety.—"Miss Esmeralda," Mr. E. Lonnen. Mr. L. Stormont, Miss Fanny Leslie, Miss Marion Hood, Miss Lettie Lind, &c.; and "Woodcock's Little Game," Mr. W. Grossmith.

Haymarket.—"The Red Lamp," drama, Mr. Beerbohm Tree, Mr. Brookfield, Mr. Allan, Mr. Sugden, Mr. Pateman, Miss Marion Terry, Mrs. Beerbohm Tree, Miss Filippi, &c.; and "The Ballad-Monger," Mr. Beerbohm Tree, Mr. Brookfield, Mr. Stewart Dawson, Miss Marion Terry, &c.

Her Majesty's.—Promenade Concerts. Conductor Mons. Auguste Van Biene.

Lyceum.—"The Winter's Tale," Mr. Forbes Robertson, Mr. Macklin, Mr. Fuller Mellish, Mr. Charles Collette, Miss Mary Anderson, Mrs. John Billington, &c.; and "Cool as a Cucumber," Mr. Charles Collette.

Olympic.—"The Pointsman," melodrama, Mr. J. G. Grahame, Mr. J. P. Burnett, Mr. E. S. Willard, Miss Maud Milton, Miss Agnes Hewitt, &c.; and a farce.

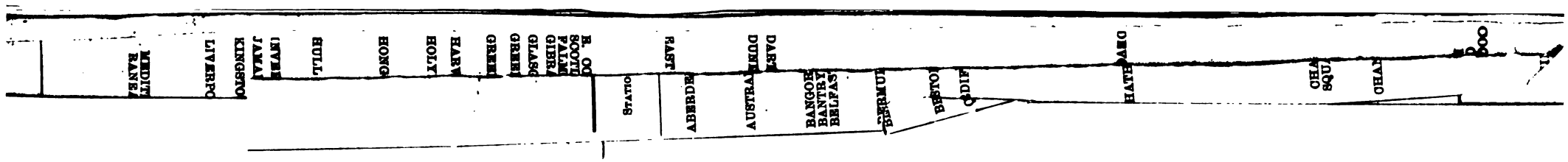
Prince of Wales'.—"Dorothy," comic opera, Mr. Ben Davies, Mr. Arthur Williams, Mr. Hayden Coffin, Miss Marie Tempest, Miss Grace Huntley, &c.; and "Jubilation."

Princess'.—"Shadows of a Great City," melodrama, Mr. J. H. Barnes, Mr. H. Parker, Mr. J. L. Shine, Miss M. Rorke, Miss Cicely Richards, &c.; and "Editha's Burglar."

Royalty.—French Plays. Manager Mr. M. L Mayer.

Strand.—"The Sultan of Mocha," comic opera, Mr. H. Bracy, Mr. C. Danby, Mr. Ernest Birch, Miss Violet Cameron, Miss M. Shirley, &c.; and "A Merry Meeting."

Toole's.—"Dandy Dick," farcical comedy, Mr. J. Clayton, Mr. Alfred Bishop, Mr. H. Eversfield, Mr. F. Kerr, Mr. Denny, Miss Laura Linden, Mrs. John Wood, &c.; and "Woman's Wrongs," Miss Cudmore, Miss Roche.


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CHARLESTON SQUADRON
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Commands.	In Charge.	Station.
HEAD QUARTERS STAFF OF THE INDIAN ARMY.		
Viceroy and Governor-General of India	His Excellency the Earl of Dufferin, K.P., G.C.M.G., G.C.B.	Calcutta
Member of Council in charge of Military Department	Lieut.-Gen. G. T. Chesney, C.S.I., C.I.E., R.E.	Calcutta
Commander-in-Chief in India	His Excellency General Sir F. S. Roberts, Bart., G.C.B., G.C.I.E., V.C.	Calcutta
GENERAL STAFF:—		
Adjutant-General in India	Maj.-Gen. W. K. Elles, C.B.	Calcutta
Quartermaster-General in India	Maj.-Gen. E. F. Chapman, C.B., R.A.	Calcu

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BENGAL ARMY.		
DIVISIONS AND BRIGADES, ETC.:—		
Rawal Pindi	Maj.-Gen. Sir M. Dillon, K.C.B., C.S.I.	Ra
Oudh	Maj.-Gen. Sir C. J. S. Gough, K.C.B., V.C.	Lu
Meerut	Maj.-Gen. Sir G. R. Greaves, K.C.B., K.C.M.G.	M
Sirhind	Maj.-Gen. D. MacFarlan, R.A.	Un
Allahabad	Maj.-Gen. Sir T. D. Baker, K.C.B.	All
Lahore	Maj.-Gen. Sir H. H. Gough, K.C.B.	Me
DISTRICT & BRIGADE COMMANDS:—		
Presidency District	Brig.-Gen. H. M. G. Purvis, R.A.	C
Rohilcund District	Brig.-Gen. Sir J. Hudson, K.C.B.	B
Saugor District	Brig.-Gen. C. J. East	J
Gwalior District	Brig.-Gen. R. J. C. Marter, A.D.C.	M
Eastern Frontier District	Brig.-Gen. Sir F. B. Norman, K.C.B.	
Peshawar District	Brig.-Gen. F. J. Keen, C.B.	
Rawal Pindi Brigade	Brig.-Gen. C. Luck, C.B.	
Sialkot ,,		
Mooltan ,,		
Agra ,,	Brig.-Gen. R. M. Rogers, V.C. C.B.	
Quetta District	Brig.-Gen. Sir O. V. Tanner, K.C.B.	

Regiment or Corps.	In Command.
CAVALRY.	
Governor-General's Body-Guard	Capt. C. W. Muir
1st Bengal Cavalry	Col. A. R. Chapman
2nd ,, ,,	Lt.-Col. R. M. Clifford
3rd ,, ,,	Lt.-Col. G. W. Willock
4th ,, ,,	Col. M. M. Prendergast
5th ,, ,,	Col. H. A. Shakespear
6th ,, ,,	Col. R. M. Jennings
7th ,, ,,	Col. R. B. Graham
8th ,, ,,	Col. H. Chapman
9th ,, ,,	Col. A. P. Palmer, C.B.
10th ,, ,,	Col. O. Barnes
11th ,, ,,	Col. A. H. Prinsep
12th ,, ,,	Col. J. H. Green
13th ,, ,,	Col. W. H. Macnaghten, C.B.
14th ,, ,,	Col. C. R. Pennington, C.B.
15th ,, ,,	Col. E. D. H. Vibart
16th ,, ,,	Col. G. C. Ross
17th ,, ,,	Col. E. H. E. Kauntze
18th ,, ,,	Col. R. Wheeler
19th ,, ,,	Col. W. W. Biscoe
ARTILLERY.	
No. 1 Mountain Battery	Capt. C. P. Triscott, R.A.
,, 2 ,, ,,	Capt. E. A. Smith, R.A.
SAPPERS AND MINERS	Col. B. Blood, R.E.
INFANTRY.	
1st Regiment	Col. G. Atkins
2nd ,,	Col. T. N. Baker
3rd ,,	Lt.-Col. G. J. Skinner
4th ,,	Lt.-Col. H. E. Eliot
5th ,,	Col. J. May
6th ,,	Col. R. H. Inglis
7th ,,	Col. G. A. Way
8th ,,	Lt.-Col. C. J. Walter
9th ,,	Lt.-Col. W. V. Tregear
10th ,,	Col. R. F. Firth
11th ,,	Maj. A. J. Stead
12th ,,	Col. H. A. Little
13th ,,	Lt.-Col. J. W. A. Mich
14th ,,	Col. G. N. Channer, V.
15th ,,	Col. G. R. Hennessy,
16th ,,	Col. J. C. Minto
17th ,,	Lt.-Col. A. Fitzgerald
18th ,,	

TATION.	Description of Force.
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BENGAL ARMY.				
Divisions and Brigades, etc.:—				
Rawal Pindi				
Oudh				
Meerut				
Sirhind				
Allahabad				
Lahore				
District & Brigade Commands:—				
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Rohilcund District				
Sangor District				
Gwalior District				
Eastern Frontier District				
Peshawar District				
Rawal Pindi Brigade				
Sialkot ,,				
Mooltan ,,				
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Quetta District				

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	Col. E. J. Watson	Raipur	E.
	Col. H. C. B. Barnett	Bangalore	
	Col. D. W. Williams	Toungoo	
	Col. R. Griffith	Burmah	
	Col. H. G. Puckle	Vizianagram	
	Col. G. Murray	Rangoon	
	Col. F. C. St. John	Moulmein	
	Lt.-Col. K. F. Stevenson	Mangalore	
	Col. F. H. Tyrrell	Secunderabad	
	Col. S. F. M. T. Grant	Belgaum	
er Guards	Col. J. Mc.Mullin	Madras	
Volunteers	Lt.-Col. C. J. Pearse	Bangalore	
r Rifles	Maj. L. R. Burrows	Ootacamund	
ailway V. R. Corps	Lt.-Col. C. E. Crighton	Negapatam	
Volunteers	Maj. T. H. Baker	Coconada	
,,		Bellary	
er Rifle Corps	Lt.-Col. W. J. Pickance	Coimbatore	
r Volunteers	Maj. W. Logan	Calicut	
fle Volunteers	Lt.-Col. F. H. Trevethick	Perambore	
eers	Maj. J. Kelsall	Vizagapatam	
	Capt. R. B. Foote	Yercaud	

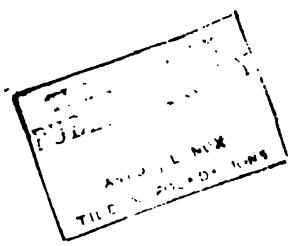
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Y ARMY.			
K.C. sidency	His Excellency the Rt. Hon. Lord Reay, G.C.I.E.	Bombay	
hief	H.R.H. Lt.-Gen. the Duke of Connaught and Strathearn, K.G., &c.	Bombay	
:—			
eral	Brig.-Gen. C. B. Knowles, C.B.	Bombay	
r-General C.B.	Brig.-Gen. F. J. S. Adam	Bombay	
Ge rigades:—			
	Maj.-Gen. A. Carnegy	Ahmedabad	
	Maj.-Gen. R. R. Gillespie, C.B.	Mhow	
on	Maj.-Gen. F. R. S. Flood, C.B.	Poona	
rict	Brig.-Gen. C. T. Heathcote, C.B.	Bombay	
	Brig.-Gen. W. Galbraith	Kurrachee	
	Brig.-Gen. A. G. F. Hogg, C.B.	Aden	
Brigade	Brig.-Gen. H. S. Anderson	Nusseerabad	

Regiment or Corps.	In Command.	Station.	
Capt. C.			
Col. A.			
Lt.-Col.			
Lt.-Col.			
Col. M.			
Col. H.			
Col. R. *CAVALRY.*			
Col. R. -Guard	Maj. M. Mayne	Bombay	
Col. H. alry	Lt.-Col. A. R. Heyland	Burmah	
Col. A.	Col. C. J. Anderson	Deesa	
Col. O.	Lt.-Col. J. F. Willoughby	Neemuch	
Col. A. (Poona Horse)	Lt.-Col. G. C. Hogg	Sirur	N.
Col. J.	Lt.-Col. W. H. J. Stopford	Jacobabad	
Col. W.	Maj. A. M. Hogg	Quetta	
Col. C.	Maj. A. L. McNair	Jacobabad	
Col. E.	Lt. L. A. Gordon	Aden	
Lt.-Col. *ARTILLERY.*			
Col. E. Battery	Capt. A. Keene, R.A.	Poona	
Col. R.	Capt. F. E. Sinclair	Poona	N.
Col. W. ,,			
MINERS	Col. W. North, R.E.	Head Quarters at Kirkee	N.
Capt. C. *INFANTRY.*		Burmah	
Capt. E. Grenadiers)	Col. R. M. Lloyd	Ahmedabad	
Grenadiers)	Col. C. F. James	Poona	
Col. B.	Lt.-Col. F. D. Mander	Mhow	
	Col. F. P. Forteath	Burmah	
	Lt.-Col. F. S. Leacock	Burmah	
	Col. E. Cunningham	Rajkot	
Col. G. A	Col. S. Fellows	Aden	
Col. T. N	Lt.-Col. V. Birch	Loralai	
Lt.-Col. G	Lt.-Col. C. E. Blowers	Poona	
Lt.-Col. E	Col. J. Jopp	Nusseerabad	
	Col. C. E. Fisher	Bhuj	
Col. R. E	Col. T. E. Strong	Poona	
Col. G. A	Col. J. G. E. Griffith	Bombay	N.
Col. R. S	Lt.-Col. H. T. Bulkley	Pishin	
Lt.-Col. V	Col. J. G. Watts	Deesa	
Col. R. F	Col. F. T. Humfrey	Bombay	
Maj. A. J	Col. G. F. Beville	Satara	
Col. H. A	Col. J. H. Drummond	Burmah	
Lt.-Col. J	Lt.-Col. J. Gatacre	Quetta	
Col. G. N	Lt.-Col. C. P. Newport	Burmah	
Col. G. R	Lt.-Col. J. Withers	Kurrachee	
Col. J. C.	Col. W. H. Ross	Burmah	
Lt.-Col. A	Lt.-Col. G. C. Sartorius	Baroda	
Col. A. C	Lt.-Col. R. Westmacott	Hyderabad	
Col. J. E.	Col. J. Galloway, C.B.	Quetta	
Col. H. W	Col. M. H. Nicolson		
Col. F. W			
Lt.-Col. ay Volunteer Corps	Lt.-Col. S. Jackson, C.I.E.	Bombay	E.
Maj. H. E ,, ,,	Lt.-Col. Hon. L. H. Bayley	Bombay	
*Col W.S. and Central India	Lt.-Col. H. J. B. Hargrave	Bombay	
Col. A. nteer Corps			
Lt.-Col. Rifle Corps	Maj. A. McHinch	Kurrachee	
Corps	Maj. H. C. Baggallay	Poona	

Commands.			
BENGAL ARMY.			
Divisions and Brigades, etc.:—			
Rawal Pindi	Col. H. C. B. Barnett	Bangalore	E.
Oudh	Col. D. W. Williams	Toungoo	
	Col. R. Griffith	Burmah	
Meerut	Col. H. G. Puckle	Vizianagram	
Sirhind	Col. G. Murray	Rangoon	
Allahabad	Col. F. C. St. John	Moulmein	
Lahore	Lt.-Col. K. F. Stevenson	Mangalore	
	Col. F. H. Tyrrell	Secunderabad	
	Col. S. F. M. T. Grant	Belgaum	
	Col. J. Mc.Mullin	Madras	
	Lt.-Col. C. J. Pearse	Bangalore	
	Maj. L. R. Burrows	Ootacamund	
	Lt.-Col. C. E. Crighton	Negapatam	
	Maj. T. H. Baker	Coconada	
		Bellary	
	Lt.-Col. W. J. Pickance	Coimbatore	
	Maj. W. Logan	Calicut	
	Lt.-Col. F. H. Trevethick	Perambore	
	Maj. J. Kelsall	Vizagapatam	
	Capt. R. B. Foote	Yercaud	

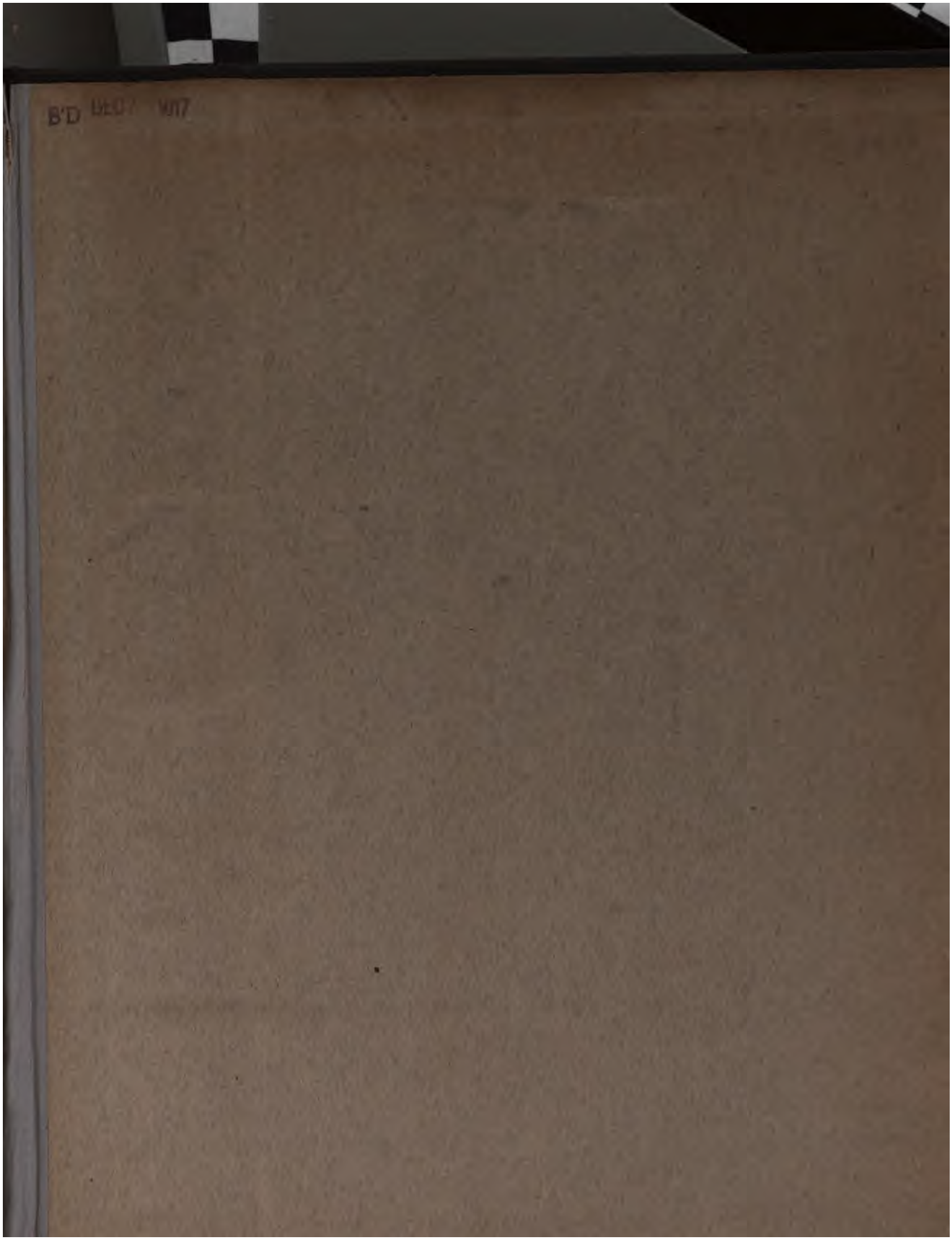
District & Brigade Commands:	In Charge.	Station.	
Presidency District			
Rohilcund District			
Saugor District			
Gwalior District			
Eastern Frontier District	His Excellency the Rt. Hon. Lord Reay, G.C.I.E.	Bombay	
Peshawar District			
Rawal Pindi Brigade	H.R.H. Lt.-Gen. the Duke of Connaught and Strathearn, K.G., &c.	Bombay	
Sialkot ,,			
Mooltan ,,			
Agra ,,	Brig.-Gen. C. B. Knowles, C.B.	Bombay	
	Brig.-Gen. F. J. S. Adam	Bombay	
Quetta District	Maj.-Gen. A. Carnegy	Ahmedabad	
	Maj.-Gen. R. R. Gillespie, C.B.	Mhow	
	Maj.-Gen. F. R. S. Flood, C.B.	Poona	
	Brig.-Gen. C. T. Heathcote, C.B.	Bombay	
	Brig.-Gen. W. Galbraith	Kurrachee	
	Brig.-Gen. A. G. F. Hogg, C.B.	Aden	
	Brig.-Gen. H. S. Anderson	Nusseerabad	

Regiment or Corps.	In Command.	Station.	
CAVALRY.			
Governor-General's Body-Guard	Maj. M. Mayne	Bombay	N.
1st Bengal Cavalry	Lt.-Col. A. R. Heyland	Burmah	
2nd ,, ,,	Capt. C. J. Anderson	Deesa	
3rd ,, ,,	Lt.-Col. J. F. Willoughby	Neemuch	
4th ,, ,,	Lt.-Col. G. C. Hogg	Sirur	
5th ,, ,,	Lt.-Col. W. H. J. Stopford	Jacobabad	
6th ,, ,,	Maj. A. M. Hogg	Quetta	
7th ,, ,,	Maj. A. L. McNair	Jacobabad	
8th ,, ,,	Capt. L. A. Gordon	Aden	
9th ,, ,,			
10th ,, ,,			
11th ,, ,,			
12th ,, ,,			
13th ,, ,,			
14th ,, ,,			
15th ,, ,,			
16th ,, ,,			
17th ,, ,,			
18th ,, ,,	Capt. A. Keene, R.A.	Poona	N.
19th ,, ,,	Capt. F. E. Sinclair	Poona	N.
ARTILLERY.			
No. 1 Mountain Battery	Capt. W. North, R.E.	Head Quarters at Kirkee	N.
,, 2 ,, ,,			
SAPPERS AND MINERS	Capt. R. M. Lloyd	Burmah	N.
INFANTRY.	Capt. C. F. James	Ahmedabad	
1st Regiment	Lt.-Col. F. D. Mander	Poona	
2nd ,,	Capt. F. P. Forteath	Mhow	
3rd ,,	Lt.-Col. F. S. Leacock	Burmah	
4th ,,	Capt. E. Cunningham	Burmah	
5th ,,	Capt. S. Fellows	Rajkot	
6th ,,	Lt.-Col. V. Birch	Aden	
7th ,,	Lt.-Col. C. E. Blowers	Loralai	
8th ,,	Capt. J. Jopp	Poona	
9th ,,	Capt. C. E. Fisher	Nusseerabad	
10th ,,	Capt. T. E. Strong	Bhuj	
11th ,,	Capt. J. G. E. Griffith	Poona	
12th ,,	Lt.-Col. H. T. Bulkley	Bombay	
13th ,,	Capt. J G. Watts	Pishin	
14th ,,	Capt. F. T. Humfrey	Deesa	
15th ,,	Capt. G. F. Beville	Bombay	
16th ,,	Capt. J. H. Drummond	Satara	
17th ,,	Lt.-Col. J. Gatacre	Burmah	
18th ,,	Lt.-Col. C. P. Newport	Quetta	
19th ,,	Lt.-Col. J. Withers	Burmah	
20th ,,	Capt. W. H. Ross	Kurrachee	
21st ,,	Lt.-Col. G. C. Sartorius	Burmah	
22nd ,,	Lt.-Col. R. Westmacott	Baroda	
23rd ,,	Capt. J. Galloway, C.B.	Hyderabad	
24th ,,	Capt. M. H. Nicolson	Quetta	
25th ,,	Lt.-Col. S. Jackson, C.I.E.	Bombay	E.
26th ,,	Lt.-Col. Hon. L. H. Bayley	Bombay	
	Lt.-Col. H. J. B. Hargrave	Bombay	
	Maj. A. McHinch	Kurrachee	
	Maj. H. C. Baggallay	Poona	



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